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ARCHITECTURE

ENGINEERING

DECORATION

211 TREMONT ST.

CONSTRUCTION

BOSTON MASS.

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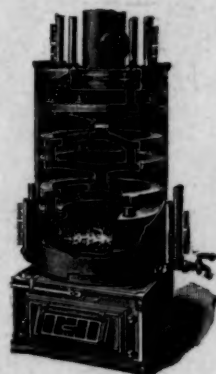
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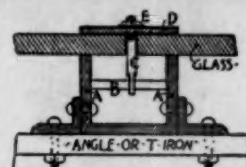
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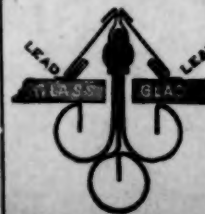


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THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XLV.

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SEPTEMBER 15, 1894.



SUMMARY:—

The Advantages of Co-membership by Architects and Engineers in the same Associations.—The Iniquity of giving Bonds for Performance.—Death of Mr. Wyatt Papworth, Author.—Death of Mr. Henry Faija, Engineer.—Rules governing the Paris Exhibition of 1900.—The Prizes, Medals and Diplomas to be there awarded.—Brick-protected Iron vs. Wood for Fire-resisting Buildings.—Damage to the Parthenon by the recent Earthquake.—Sixth Annual Exhibition of the Art Club of Philadelphia.—The Price of Pictures at recent Auction Sales.—The Prix de Rome.	37
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WE have occasionally exposed ourselves to a good deal of earnest expostulation, on the ground that architects were artists, and engineers were something very different, by pointing out some of the advantages that the German architects enjoy through the practice, which is common in Germany of uniting architects and engineers in the local professional organizations. We have been told that German architects, in their professional societies, occupy an inferior position, as compared with their engineer associates, and that this would grate upon the feelings of American architects; but, however this may be, there is no doubt that the social position of architects in Germany is very high, perhaps higher than in any other country in Europe, and their association with engineers has unquestionably helped them to this position. Whether their artistic development has been hindered by this association is another question. We hold, ourselves, a very high opinion of the best German architects as artists, although the education of architects in Germany leans much more to the practical than the æsthetic side; but the social connection of architects and engineers does not necessarily involve any sacrifice of artistic aspirations on the part of the former. On the contrary, while no architect desires to do engineer's work, and, we hope, no engineer would undertake to do that legitimately belonging to an architect, no two sets of men are better qualified to understand each other's perplexities, and give mutual assistance; and, so far as regards their business relations with the public, their interests are almost absolutely the same. Engineers often act as contractors, which architects never do; but, apart from cases of this kind, both are men of science, in their own way; both have to assume heavy responsibilities toward people who have little comprehension of their work, and both suffer from the jealousy and malice of their common enemy,—the "practical man." In the greater part of our cities, the number of architects is so small as to count for almost nothing in influencing public opinion, and the engineers are hardly better off. It is true that the powerful National organizations of both professions will interfere, so far as they can, in cases of gross oppression; but this help is slow in coming; and, in default of any other means for calling public attention with effect to the rights which the two professions claim in common, there can hardly be any objection to their association, locally, for mutual support in matters of business, and such association would often be of great use.

AS an instance of the way in which local associations of architects and engineers might be useful, we may mention the abomination of requiring architects and engineers entrusted with public work to furnish bonds for the completion of the work within the contract price, which is rapidly becoming popular. It is hardly necessary to say that no architect, and very few engineers, would have anything to do with work where this condition was stated at the outset; but the usual method is to hold a competition, without saying anything about it, and, after the competitors have spent a large amount of time and money on their designs, to offer one of them the work under such a stipulation, the alternative being the throwing out of his design, and the loss of all that it had cost him. It is already time for both architects and engineers to set their faces firmly against this degrading and unprofessional practice, and the two professions, which suffer about equally from it, could, by united action, accomplish much more against it than either profession could singly. It ought to be understood at once that no respectable architect or engineer in the United States will bind himself, by bond, contract or anything else, to do more than the common law requires of him; that is, to give skilful and conscientious service to his clients; and it should also be understood that any attempt to impose such a condition on any architect or engineer will be followed at once by a protest from all the respectable architects and engineers in the neighborhood. Such a protest, we may be well assured, would not fail of its effect; and the mutual acquaintance between architects and engineers incident to a struggle under the same banner for their common rights could not fail to be beneficial to both.

MR. WYATT PAPWORTH, whose name will be gratefully remembered by students as the editor of the modern editions of Gwilt's "*Cyclopædia of Architecture*," and the author of most of the valuable new matter in it, as well as the editor of the great English "*Dictionary of Architecture*," recently completed, after being nearly twenty years in preparation, died recently in London. Soon after the completion of his labors on the "*Dictionary*," Mr. Papworth was appointed curator of the Soane Museum, and held this position until his death. In him, students, as well as architects, have lost an able and learned friend, whose immense resources of varied information were always at the service of the profession.

MR. HENRY FAIJA, whose contributions to the knowledge of cements and mortars have placed the profession of architecture, no less than that of engineering, under great obligations to him, died at his residence, near London, August 21. Mr. Faija was the son of a distinguished miniature painter, and was born in London in 1844. After finishing his school education, he was articled to a firm of ship-builders, and followed this pursuit for some years. He then abandoned it for general engineering, and opened an office in London. One of his first commissions was for the designing of cement-works, and, in carrying this out, he observed so many crudities and errors in the current practice of cement manufacture that he resolved to devote himself particularly to the improvement of this industry, and soon became widely known as an expert on the subject. He was called upon to build cement factories in North and South America, as well as in various parts of Europe, and was applied to as an expert on almost all matters connected with the manufacture and use of the material. Finding it necessary to systematize the tests which he was constantly called upon to make, he arranged regular testing-rooms, both for chemical and physical investigation, which have been of great service to consumers, as well as manufacturers of cement. Naturally, in his chosen field he was preëminent among experts, and his name was constantly quoted in all engineering publications. He was an Honorary Associate of the Royal Institute of British Architects, as well as a member of nearly all the principal engineering societies, and Vice-President of the Society of Engineers.

WE find in our foreign exchanges the detailed rules for the government of the Paris Exhibition of 1900, some of which are interesting. Among other things, space, water, gas, steam and motive power will be furnished gratuitously, the exhibitors having only to pay for putting in such

branches as they require from the main gas, water and steam pipes, and belting for the transmission of power from the main shafts to their machines. As usual in such cases, the Exhibition buildings will be made regular custom-house warehouses, and goods will be forwarded without delay at frontier custom-houses. Objects made in the Exhibition buildings, or within the Exhibition enclosure, will not be subject to any duty beyond what may be due on imported materials used in their fabrication. No work of art or other object exhibited is to be drawn, copied or reproduced in any way, without the express authority of the exhibitor, approved by the General Direction of the Exhibition; but the Commissioner-General can give authority for the reproduction of general views. This regulation is, of course, intended for the protection of exhibitors; and, with a similar view, patentable objects, which have not been patented, may be shown, without losing their right to a patent. The official catalogue will be in French, but any nation may publish in its own language a catalogue of its own Section, which, however, must be sold in the Exhibition grounds under the regulations of the Administration.

IN contrast with the politic practice of recent exhibitions, where all the numerous medals and diplomas have been of equal value, the recompenses of the Exhibition of 1900 will be of five classes. The highest class will consist in the Diploma of the Grand Prize; the second will be the Diploma of the Gold Medal; the third will be the Diploma of the Silver Medal; the fourth that of the Bronze Medal; and the fifth will be the Diploma of Honorable Mention. It will be seen, therefore, that the rewards offered are worth working for, and the result will probably be seen in unusual emulation. The juries of award will be divided into three groups. The total number of regular jurors is to be about one-sixtieth of the number of exhibitors, and substitute jurors are to be appointed, to the number of one-third the regular jurors. The French jurors are to be selected by the Commissioner-General, with the assistance of the Directors of the several Sections, from among persons who have acted as jurors, or have gained distinction as exhibitors, in other great exhibitions, or from the ranks of learned societies. The foreign jurors will be selected by the Commissioners of their respective countries. The class juries must have a French President, and foreign Vice-President. These juries will draw up lists of the exhibitors in their Section, with the recompenses which they consider due, and also lists of the workmen who have particularly distinguished themselves in the fabrication of the objects shown. The lists of the class juries will be revised by the group juries, whose business it is to see that no class is omitted, and that no exhibitor obtains two recompenses for the same object; and the group juries report to the superior jury, which consists of the Presidents and Vice-Presidents of the group juries, the foreign Commissioners, and the principal French officials of the Exhibition. This jury announces the recompenses. All jury deliberations, of whatever degree, are to be rigorously secret; and it is hardly necessary to say that objects exhibited by any member of any jury, whether regular or substitute, are excluded from competition.

AN experiment was tried not long ago, by the Department of Inspection of Buildings in Vienna, which has much interest for us. The object of the experiment was to try the efficacy of an enclosure of brick in defending iron against the effects of fire. A wrought-iron column, nearly twelve feet high, was made, consisting of two channels connected by lattice bars. This was set up in a small room, built with brick walls, and provided with chimneys, and, by means of levers, the column was put under compression. The column was then surrounded by a shell of common brick, four and one-half inches thick, laid in fire-clay mortar. No attempt was made to fill the shell in solidly around the ironwork; on the contrary, the hollow space was utilized to contain thirteen fusible mixtures, melting at temperatures varying from 65° to 900° Centigrade, as a test of the heat which might be developed in it. Various samples of stone, concrete and other materials were placed in the room, outside of the shell enclosing the pillar, or built into the exterior walls. The room was then filled with split fir-wood, and fire set, and the doors immediately walled up with slabs of plaster-of-Paris. After the fire had burned for two hours and a half, the doors were broken in, and a full

stream turned upon it from a fourteen horse-power steam fire-engine. It was impossible, however, to cool down the room, so that the condition of things in it could be examined, before the next day. It was then found, by the testimony of fusible test-pieces left in the outer room, that the temperature there had exceeded 400° C, or 752° Fah. The walls of the outer room, which were of brick in Portland cement, retained their strength, but the natural stones had nearly all succumbed to the heat, although in different ways. The ceiling had been covered partly with plaster blocks, and partly with hollow terra-cotta tiles. Both of these had suffered. The terra-cotta tiles still held in place, but would not have borne any load, and the plaster-blocks, although they had resisted the fire well, were soaked and softened by the water, and, not being very strongly secured, fell soon afterwards. The enclosure of the iron pillar was still standing firm, although the corners of the bricks had shelled off to a depth of an inch or so, and the fire-clay mortar was partly washed out of the joints, and a considerable number of bricks in the upper part of the structure were cracked, so that the water had penetrated entirely through them. On removing the brick shell, however, the iron pillar was found entirely uninjured. Even the paint was not scorched in the slightest degree, and the fusible test-pieces showed that the temperature had barely reached 65° Centigrade, or 149° Fahrenheit.

ACCORDING to the *Kölnische Zeitung*, the earthquakes which recently ravaged Greece, and particularly Attica, did not spare the precious remains of antiquity, and the Parthenon, particularly, is so badly damaged that another earthquake would probably destroy it, even if it is not already shattered beyond repair. On the north side, a piece more than two feet long was thrown out of a drum of the fourth exterior column. On the western front, the entablature of the inner order is badly damaged; and, on the northwest corner, a piece about two feet long has split away from the architrave between the first two columns. Worse than this, the columns at the entrance are so shattered that many fragments have fallen out, and the architrave is displaced, and appears ready to fall. The Government has given directions to secure the structure as quickly and thoroughly as possible, but, for this end, it will be necessary to put iron bands around the injured architraves and columns.

THE Sixth Annual Exhibition of the Art Club of Philadelphia will open to the public on Monday, November 19, and close December 16. Two gold medals are to be awarded, one for painting, and one for sculpture. Only original works, by living artists, which have not been publicly exhibited in Philadelphia, will be admitted, and sales will be attended to, on a commission of ten per cent, if a request is made to that effect, and the price is stated when the picture is sent in. Lists, which may be obtained, with other particulars, from the Secretary, Mr. H. T. Cariss, Art Club of Philadelphia, 220 South Broad Street, must be sent in before October 27.

PICTURE sales in England seem to be almost as much of a lottery as they are here. A short time ago two portraits, both genuine, and both by Sir Joshua Reynolds, were sold. One, known as the "Portrait of Lady Betty Delmé and her Children," brought eleven thousand guineas, or about fifty-seven thousand dollars, which is said to be the highest price ever paid at auction for a picture in England. Another Reynolds portrait, of "The Hon. Miss Monckton," brought seventy-five hundred guineas; while another was sold for fifteen hundred, and a fourth, at a different sale, for seven hundred. At the last sale, a Rubens, "The Prodigal Son," brought only eight hundred guineas, and a Guido Reni "Venus stealing Cupid's Bow," found no bona-fide bid at a thousand.

THE annual competition for the Prize of Rome in the Architectural Department of the Paris School of Fine Arts has resulted in the award of the prize to M. Recoura, pupil of M. Pascal. M. Recoura has for several years been a very distinguished member of the School, his name appearing regularly among the winners of other honors. The first-second Grand Prize was awarded to M. Patouillard, pupil of M. Ginain, and the second-second Grand Prize to M. Héraud, pupil of M. Raulin.

COLONIAL ARCHITECTURE IN WESTERN MASSACHUSETTS.



The "Pyncheon Fort," Springfield, after a drawing in the Springfield Public Library.

save for an occasional Indian trail. They had learned by that time that there was little possibility of stumbling upon the northwest passage or of settling on the shore of the Pacific — though the charter of their colony granted them the right to do so — but beyond these general negative ideas, the tales of Indians, and the varying reports of their own hunters, they were as ignorant of their destination as the "Babes in the Wood."

After a time they reached the Connecticut Valley and there they dwelt, scattered up and down the river between Northampton and Weathersfield, Conn., building up during the remaining sixty years of the century a straggling line of towns nearly 100 miles in length. The growth of these towns and villages was slow. The distance from their base of supplies was great, severe winters and the failure of crops combined with the constant inroads of the Indians, retarded development and immigration. For many years there was only a bridle-path to Boston and all merchandise had to make the long and perilous voyage around Cape Cod, through the Sound and the equally long voyage up the Connecticut.

The first settlement in the Connecticut Valley in Massachusetts was made in Springfield in 1636, and having the start in years and numbers the town grew rapidly and soon distanced its neighbors, becoming at last the leading commercial centre of the western part of the State. Around it Longmeadow, Agawam, West Springfield, Hadley, Westfield, Southampton and Northampton, Hatfield, Deerfield and towns still farther north were slowly settled: some by immigrants from the eastern part of the State, some by wise men from Connecticut who had prophetic instinct, and others by those of Springfield, who after a few years found their native town becoming too crowded, and saw in the tributary valleys and rich upland pastures of the parent river the promise of more abundant reward for the same amount of labor.

Hardly had the first of these valley settlements been established when the Indians, for the first two or three years friendly, suddenly took arms against the settlers and the war for mutual extermination began, an interminable struggle, barbarous on both sides, and one which would have exhausted the strength and patience of any people save our forefathers. Says Holland in his "History of Western Massachusetts": "From the first settlement at Springfield, until the Conquest of Canada in 1760, a series of one hundred and twenty-four years had passed away, and by far the larger part of this time the inhabitants of the territory embraced in old Hampshire had been exposed to the dangers, the fears, the toils and trials of Indian wars, or border depredations. Children had been born, had grown up to manhood, and descended to old age, knowing little or nothing of peace and tranquillity. Hundreds had been killed, and large numbers carried into captivity. Men, women and children had been butchered by scores. There is hardly a square acre, certainly not a square mile, in the Connecticut Valley, that has not been tracked by the flying feet of fear, resounded with the groan of the dying, drunk the blood of the dead, or served as the scene of toils made doubly toilsome by an apprehension of danger that never slept." And still



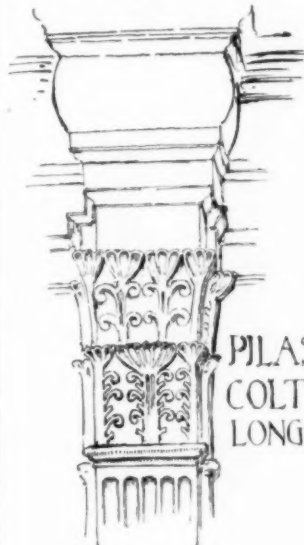
E. Blake House, 1760. Nathaniel Ely Tavern, 1667.

ered by scores. There is hardly a square acre, certainly not a square mile, in the Connecticut Valley, that has not been tracked by the flying feet of fear, resounded with the groan of the dying, drunk the blood of the dead, or served as the scene of toils made doubly toilsome by an apprehension of danger that never slept." And still

through all this the towns grew slowly, though not steadily. Springfield was practically laid in ashes in 1675, Deerfield met the same fate twice, and a half-dozen of the other towns barely escaped, but always the inhabitants — when there were any left — went to work and built again. How Florence in the fourteenth and fifteenth centuries fighting Pope, Emperor, Duke, Free Company, friend and foe, burning and tearing down, visited by flood and famine, found time for the art and architecture which she has given to the world, and above all how she has preserved it, impresses every one who reads for the first time her history, and in this Connecticut Valley the wonder is not that there is so little Colonial architecture, but that there remains standing a single structure built before the eighteenth century.

Well, there are very few left. Still, until the early part of the present century there were a good many, and it is the march of improvement rather than that of violent destruction that has carried them away.

There is little doubt, that from 1665 to 1675 Nathaniel Ely of Springfield kept a tavern in that town, in fact twice he was fined, once twelve pounds for selling four quarts of cider to Indians, and again forty shillings for not keeping his beer up to the standard strength; and this tavern of his still stands, hemmed-in by brick blocks — perhaps not in its original form, but, likely, very near it, for the earliest houses in this region had undoubtedly steep gable roofs, as this has still. The "Pyncheon Fort," built by the first John Pyncheon in 1660, which stood until 1831, had the same steep gables, if a wash-drawing made by the Rev. W. B. O. Peabody, one of the early Unitarian ministers of Springfield, is correct. In Hadley, in 1700, it was voted that the new meeting-house have a "flatish" roof. As this was a thirty-degree roof, it is reasonable to suppose that the majority of roofs already built were steeper. Then, too, the use of thatch being common, a steep roof was a necessity and it would be strange if the steep roof did not remain in fashion after



PILASTER CAP
COLTON HOUSE
LONGMEADOW.

thatch was discarded. I say the use of thatch was common, for "thatchers," in common with "carpenters, joiners, brick-layers and sawyers," received in 1700 three shillings per day, according to Governor Hutchinson, and of Northfield it is recorded that in 1702 "the planters built small huts and covered them with thatch." This house of John Pyncheon, however, was not thatched. It had shingles of oak eighteen inches long and one inch thick which cost

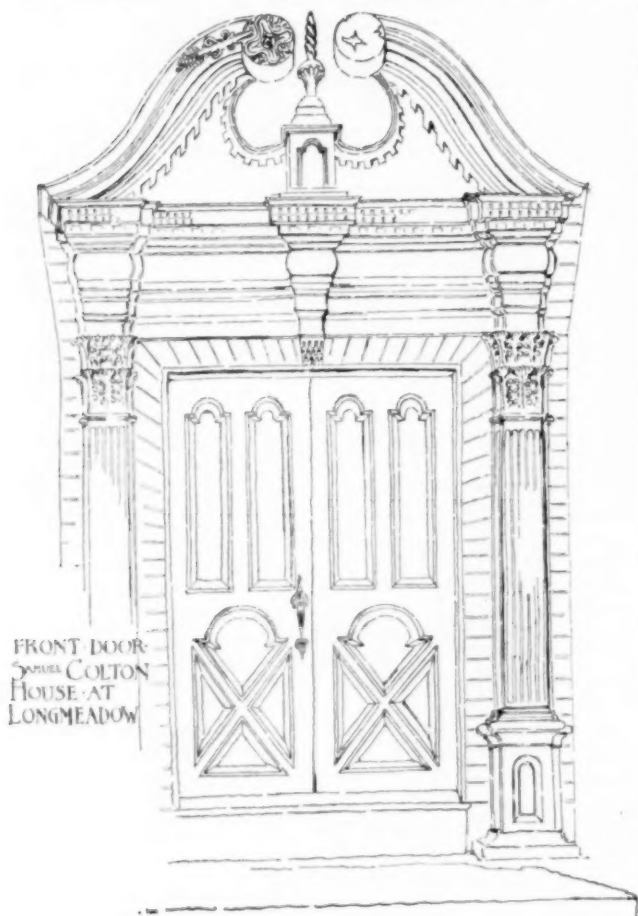
twenty shillings per thousand. In 1667, by the by, this same J. Pyncheon sold pine boards of good quality at his Springfield saw-mill at four shillings sixpence per hundred feet.

Besides the Ely Tavern in Springfield, I know of no seventeenth-century building in the Connecticut Valley which bears any great resemblance to its original form. Early in the eighteenth century, however, labor and materials had become plenty enough to afford larger and more substantial houses, and many of these, very slightly changed, if at all, stand now. As a general rule, they are nearly all of the same type, varying slightly on closer examination.

It is with this class and type of house that I suppose, rightly or wrongly, the general interest in "colonial" architecture begins. That is, it is in this first decade of the eighteenth century that certain houses began to display more or less applied ornament, designed, most of it, from a varying distinct recollection of the latest style in England (or perhaps Boston) interpreted in wood by local geniuses with what simple tools they possessed. In nearly all cases the result was bad, but I do not know that it is less interesting on that account. Take, for instance, the entrance of Samuel Colton's house in Longmeadow. The house was built about 1740. It is clear that the builder, the carpenter and architect, who were undoubtedly the same, designed and executed as carefully as might be the really elaborate work about the door: every moulding has been worked by hand; the frieze moulds, the flat dentils of the pediment cornice barely raised above the panelling, the raised and bevelled panels of the door, and the carefully-drawn radial-lines between the door and the pilasters; while the carved capitals and the decorated rosette with its bunch of grapes attached, the latter being in cast-iron, bespeak a man with a feeling for the beautiful, his vision a little befogged, perhaps, but his intention good. In these pilaster-caps did the designer intend to represent as best he

could Corinthian capitals, of which, no doubt, he had seen pictures? Surely, if he did, he must have been a direct descendant of those Lombard-Byzantine artists and sculptors of the eleventh century who wrought in North Italy six hundred years before.

I have remarked above that these houses remaining to us from the Colonial period (I use the word Colonial here in an historical sense,) are all of the same type. The same may be said of the towns themselves. All of the Colonial Connecticut-Valley towns, with the single exception of Northampton, were laid out on the same plan: the single street, often over three hundred feet wide, with a "common" running through the centre on which the church generally stood. On either side of the street stood the houses, always with eaves to the street; the lots on which they were placed were comparatively narrow, and behind the house, at right angles to the street, ran a straggling line of barns and out-houses, — on one side of the street towards the river, which, in general, was a short half-mile or less away, on the other to the swamp or the foot-hills of the valley, where each family dwelling on the street had its pasture, its woodland or its grass-land; and to this day the great majority of these towns are unchanged in their plans, many of the original "home lots" being still owned by the direct descendants of those to whom they were granted in the seventeenth century. In the little town of



FRONT DOOR
SAMUEL COLTON
HOUSE AT
LONGMEADOW

Deerfield, there are twelve of these estates, and the average age of the houses on them is about one hundred forty-three years.

The house built in Hatfield, by Samuel Porter, in 1713, is a good example of this better class of houses. The plan was a simple one, two rooms on the first floor, with the chimney and entry between them, the chimney being the larger; up stairs, four rooms. At the rear was a one-story addition, which long ago fell away, to be replaced by another.

Why the second story overhangs the first on the front by four or five inches, I do not know. I can find no constructional reason for it. It certainly could not have served, as did the greater overhang on earlier buildings, as a convenient vantage-point for shooting Indians, though the house was built in the darkest period of the French and Indian wars. The clapboards are split and shaved with their edges moulded. The front door is practically a double door made up of the ordinary panel door backed by a batten door on the inside, the whole being three inches thick. Despite the scarcity of pine of which the records of that time often complain, all the interior partitions are solid and panelled in wood, and there is panelled wainscot everywhere, the width of the panels testifying to the scant respect paid to the provision in the Colonial charter which reserved all trees over twenty-four inches in diameter for the use of the Royal navy. The extent of wood panelling was brought to our notice by the present dweller in the house by the eminently practical

observation that the room took forty yards of carpeting and only two double rolls of wall-paper. All of this detail: panels, mouldings, wainscot-caps, stair-rails and balusters are of the simplest sort, rather heavy and perhaps clumsy, but evidently local work. It is a significant fact that in the year that this house was built, the town-meeting, of which this Samuel Porter was the moderator, voted to build its new meeting-house, the one with the aforesaid "flattish" roof, and the committee voted to "buy glass, nails, and other necessities, lay out work by getting clapboards, shingles, etc., hire workmen, improving our own inhabitants as much as may be, and levelling all the work at money price." Is it possible that the moderator may have found it convenient to build his house at the same time, and perhaps get a little better price on his own work? Such things have been done in later days.

There are a good many of these old houses very like the Porter house, in fact, almost identical with it in plan and detail, scattered up and down the valley. As the years of the century increased, the size of the houses increased also, and while the length of the house on the street was kept about the same, the two rooms on the first floor were increased to four, making the house much deeper. Then began to be built the gambrel-roof houses of which the old Josiah Dwight house [See Illustrations], still standing in Springfield, is as good an example, probably, as we have left to us. This was built about 1764 and outwardly is, in general, as it was one hundred and thirty years ago. There is a little more elaboration of detail about the windows and doors and the cornice, but the doorway is very like that of the Porter house in Hadley, like the Colton house in Longmeadow, and, in fact, like fifty other houses in the neighborhood. Here are the same wrought clapboards with their moulded edges, and the same pineapple in the centre of the broken pediment above the doorway, the same indication of a flat arch above the door-opening, and almost exactly the same doors themselves. Inside, the house has been so completely torn to pieces and remodelled, that only a few of the rooms retain their original shape, and instead of a score of representatives of one family, the representatives of scores of families, and possibly as many nationalities, now dwell there. Up to the close of the Revolutionary War this type of house, beginning with the narrower house, and gradually increasing in size with the change from the simple gable roof to the gambrel roof seems to have been the prevailing plan all through this section of the country, and examples of it might be multiplied almost indefinitely, but it would amount to hardly more than a vain repetition. People were then, probably, pretty much the same as they are now: the recognized leader in a financial and social way, built himself a house, and his friends and his enemies followed as closely as they could in his footsteps. Until the War of the Revolution, there was little, if any, diversity of opinion as to who these leaders were.

G. C. GARDNER.



Tombstone at Hatfield, Mass.

THE PROBLEM OF WASTE.

WE pride ourselves, in this so-called practical age, on having reduced waste to an approximate minimum. The claim may have some basis of fact in regard to materials; but in regard to the application of productive energy, it certainly has a very unsubstantial foundation. By productive energy, I mean, in this case, human labor which, if intelligently directed and applied, would produce results of money value to the community. When labor is so misapplied as not to produce such results, waste is certainly a mild term by which to characterize the outcome. For the purposes of this article all considerations are ignored in the computations except those which may be reckoned in dollars and cents, though there are ethical considerations of supreme importance involved. A limited space will, however, permit of only a bare mention of the moral bearings of the facts deduced.

Ever since the announcement was made that the commissioners having in charge the erection of a capitol for the State of Washington had received one hundred and eighty-eight sets of competitive plans, the thought has very frequently recurred, and always with added force, "Nearly one hundred thousand dollars wasted." The insistence of this thought has led to the working-out of a statement, in topical form, of the probable average waste of time and

labor on a building, the cost of which is about a million dollars, when erected under our present system of competition. The statements of values are intended to be safely conservative in all cases and will, it is believed, be found to be far too low when travelling and other expenses and expenditure of time are taken into consideration. The estimate is carried only so far as to include the first series of sub-contractors, though extremely suggestive of how far-reaching and inclusive is the effect of the system. Even at this early stage of the analysis we find the waste aggregating \$110,400, or more than eleven per cent of the cost of the work. To follow out one line of dealings from beginning to end may give a mild suggestion of the enormity of the system when traced into all its varied ramifications.

The persons having in charge the erection of such a building as has been indicated, after agreeing on certain data, advertise for competitive plans, specifications and approximate estimates, sending to each architect, who desires to compete, certain printed instructions, plans of lot and other necessary data. For the Washington Capitol one hundred and eighty-eight sets of plans were submitted, one of which, it is presumed was accepted. So far as the other one hundred and eighty-seven were concerned, the time and money spent in perfecting them were practically wasted. It may be suggested that there are incidental advantages which go far to offset this expenditure of time and money, such, for instance, as the practice gained by working-out a practical problem on a large scale, the prestige secured by possible favorable mention in connection with the competition, and possibly others. But on the other hand, it could scarcely be considered wise or judicious policy to place the erection of important buildings or the expenditure of large amounts of public or private funds in the hands of those who were very much lacking in these two points, and under a better system these factors could easily be eliminated.

Allowing the very moderate price of \$500 as the average cost of the one hundred and eighty-seven sets means the very considerable total loss of \$93,500. (On the New York Municipal Buildings one hundred and thirty sets of plans were submitted, costing on an average not less than \$1,000, making in all \$130,000, equivalent to a five per cent commission on \$2,600,000-worth of work.) Each of the one hundred and eighty-seven plans is accompanied by an approximate estimate, the making of which should not cost less than \$50 each, or \$9,350 in all.

The architect having been selected and the plans sufficiently far advanced, advertisements are sent out for competitive bids. One thousand dollars would probably be not more than enough to cover the cost of the two series of advertisements. Suppose that twenty-five unsuccessful bids costing \$200 each, or a total of \$5,000, are received. The successful contractor having been selected, the time has now arrived for the actual beginning of the structure and the amount of waste as expressed in money value is \$108,850.

APPROXIMATE ESTIMATE OF WASTE OF TIME AND ENERGY ON A \$1,000,000 BUILDING FROM THE TIME IT IS PUT INTO THE HANDS OF COMMISSIONERS.

PRIMARY SOURCES OF WASTE.		SECONDARY SOURCES.	
I. Advertising for competitive plans and estimates. \$1,000		After the contract is awarded, the principal contractor would usually obtain sub-estimates somewhat as follows: The sub-contractor, having to secure materials, probably gets from one to a dozen estimates on many sub-divisions, and so on <i>ad infinitum</i> .	
		Amount brought forward \$108,850	Amount brought forward \$109,700
II. 187 Sets of plans @ \$500 93,500		1. Excavation and grading 5 estimates @ \$5 .. 25	15. Elevators..... 50
		2. Foundations 100	16. Carving (stone and wood)..... 50
		3. Cut-stone..... 75	17. Painting..... 50
		4. Brickwork..... 100	18. Glazing..... 50
		5. Terra-cotta..... 25	19. Decorating..... 50
		6. Marble (interior) 25	20. Heating and 50
		7. Tiling..... 50	ventilating..... 50
		8. Asphalt..... 50	21. Plumbing..... 50
		9. Plastering..... 50	22. Safes and vaults. 50
		10. Carpentry..... 150	23. Electric wiring. 50
		11. Stairs..... 50	24. Gas-piping..... 50
		12. Iron..... 50	25. Hardware..... 50
		13. Copper and galvanized iron... 50	26. Chandeliers..... 50
		14. Roofing..... 50	27. Furniture..... 50
			28. Fittings..... 50
III. 187 Approximate estimates @ \$50..... 9,350			
IV. 25 Bona-fide Bids @ \$200..... 5,000			
\$108,850		\$109,700	Total.... \$110,400

The principal contractor generally sublets the work in comparatively small parts, somewhat as suggested by the table. Suppose six carpenters each spend \$20-worth of time in figuring his special part of the work. One gets the contract and \$100-worth of labor is wasted. The carpenter needs inside finish. He goes to several mill-men, or, what amounts to the same thing, they come to him, and gets estimates on the cost. One wins the job; the others lose their time. The mill-man gets prices from several lumber-jobbers, the lumber-jobber is periodically approached by the agents of the wholesale lumber-dealer, the wholesaler deals with the saw-mills, the saw-mill men with competing loggers. Similar sequences apply in all the other departments. The carpenter needs nails. A dozen, more or less, hardware dealers spend hours in trying to sell them to him. The retailer buys of the jobber, the jobber of the wholesaler, he of the manufacturer, the manufacturer buys his iron plates of the jobber, the jobber of the manufacturer, the manufacturer buys it in

bars, the dealer in bars buys it in pigs, the dealer in pigs buys it in ore. If, perchance, the logger or the miner gets rich, he goes to three or four architects for "sketches" and again is the weary grist of waste ground out. And the "system" works the same in every other kind of business. Is it any wonder that ninety-five per cent of all business enterprises fail? The marvel is that even the small remainder succeed.

The question naturally suggests itself, who pays for all this waste? The answer is very simple: you, good friend, and I. If the architect enters into competitions which prove unsuccessful, he must get from his paying clients enough to make up for his loss of time and money, or in the end he must fail. The builder must make enough out of the work he actually performs, to pay, first, for losses on work taken at too low a price, second, for the losses sustained through the failures of others to meet their obligations to him, third, for the expense of making a great many useless estimates, fourth, for the general expenses of carrying on his business, or he, too, must fail. And similarly with every man engaged in business. But who pays? Every honest man, who is able to pay his debts, pays his proportion toward keeping up this reckless, unscientific, unpractical way of doing things which we dignify by the name of "system." It is systematic robbery, and none the less so because it is apparently voluntary. Yielding up one's money with a pistol at the head or a dagger at the heart is just as voluntary. Compete or starve is the dictum and in many cases it comes pretty near to being compete and starve.

One word now concerning the ethical points hinted at above. First, the desire of securing the commission offers a temptation, generally irresistible, for the architect to make his plans so as to catch the committee's favorable consideration without too much regard for cost and other minor details. This involves, second, the forcible adjustment of the so-called approximate estimate to conform to the known appropriation for the erection of the building. In other words, he presents a statement which he knows to be untrue. To such an extent has this been carried that an approximate estimate, if asked for at all, carries with it almost no influence in affecting the decision of a committee. Third, the contractor's anxiety to secure the work influences him to submit estimates far too low to enable him to perform his work in accordance with the terms of the contract. In order to protect himself from loss he feels obliged to vary from his agreement, to the detriment of the building, wherever he can do so without discovery. In plain, unvarnished language, he *steals* from the quality of the work. Fourth, the generally accepted belief in the susceptibility of committees to illegitimate influences aggregated under the comprehensive word "pull," local, political, or mercenary. Fifth, a suspicion, amounting in some cases to knowledge, that the committee is not above selecting points of excellence from the rejected plans and incorporating them in the accepted ones without credit or recompense to the originator. These and other kindred abuses are the legitimate outgrowth of competition in any and every line of business. Does it not seem as if the system was simply a series of premiums offered to foster selfishness, dishonesty and corruption? It certainly could not well be more ingeniously arranged, or operate more effectively, to produce such results, and it is only because of a divine substratum of rebellion against so un-Christian a system that it has not wrought more widespread havoc and desolation.

No allusion has been made to what may be termed incidental expenses, such as the maintenance of builder's associations, news bureaus, and the like, items of considerable importance in view of the fact that the honest purchaser pays for them ultimately.

The facts may not be so difficult to establish, but wherein lies the remedy? Lack of space forbids the present discussion of that point. Rest assured that, when there is a sufficient realization of the defilement of the Augean stable, a Hercules will be raised up to turn into the cleansing and purifying rivers of unity and intelligent cooperation¹.

WARREN A. RODMAN.

CRACKS AND SETTLEMENTS.

FEW buildings of any magnitude are quite free from cracks and settlements. It is often a matter of the utmost importance to ascertain their cause. The architect naturally desires to do so in every case, that he may guard against them for the future. The owner has an interest in finding it out, that he may prevent the injury from going farther. The builder naturally wishes to clear himself, if he has been unjustly blamed for the defects that have appeared in his building; and the outsider, if, by chance, the evil seems chargeable to outside interference, is equally anxious to show that it is not of his making. Amongst all these conflicting interests the facts are often in danger of being misinterpreted, for there are very few failures of this class which do not at first sight seem capable of more than one explanation. A great number of small details may have to be ascertained and balanced one against the other, before one theory is conclusively proved to be true and another to be false; so that the first need in these inquiries is to avoid jumping to a conclusion, and to keep a fair and open mind.

We will begin with cracks traceable to the foundations. Firm,

¹ Since writing the above, the agent of a marble company has told me that \$300 would not pay for the actual expense to which they had been put in figuring and refiguring a single job in this city. Other testimony of a similar character is abundant.
W. A. R.

undisturbed earth will safely bear from one to two tons per superficial foot. Clay, if covered up from rain and sunshine, will carry from three to four, or even five tons per foot, and hard, compact gravel considerably more. If greater weights are put on these substances respectively, the superstructure will sink, and as the pressure is likely to differ at different points, it will probably sink unequally. The more unequally it sinks, the worse it will crack, and this will happen, too, when a small part of the soil is softer than the bulk of it, and almost as much when a small part is harder. This is why pieces of old footings and concrete, which may be met with in digging out the trenches for a new building, should be removed and not made use of. Having long been subjected to pressure, the probability is that they would sink or settle less than the concrete or footings of the new work, and cracks in the walls above would appear on each side of them.

The clay that will carry most weight is a stone clay, or a mixture in different proportions of clay and gravel. In some places, for instance, in the Essex district to the north of London, there is a good deal of what may rather be called "shaly" clay. It is free from stones and tends to split into horizontal flakes or *laminae*, with a smooth, soapy surface. While this clay is protected from the weather, as it is, for instance, below the inner walls of a building, it will safely carry a great weight, provided always that it cannot escape laterally at a lower level. But once let a trench be dug, even at a distance of many feet, and these soapy, slippery flakes will begin, by degrees, to slide towards it. If the trench is wet, the process goes on faster. The flakes, as they reach the damp part, break into smaller and smaller fragments, and finally melt into mud. Each particle which does so, makes room for another particle behind to take its place, and so, in time, a sinking or sliding of the clay takes place at an angle so slight that any movement in it would at first seem quite impossible. "You have no need to plough your fields here," said a London architect to an inhabitant, after his first experiences with this shaly clay; "you only need to take off the grass and cut shallow trenches a dozen yards apart, and the fields would plough themselves."

It is quite otherwise with the stony clays of London. Their tendency to slip is incomparably less. Even if they had a tendency to lamination, the pebbles they contain would bind the beds together. But, apart from this, they are of a firmer, more coherent nature. It is of these, and such as these, that the text-books speak when they state that the angle of repose in clay — the steepest slope which it can permanently be made to keep — is one of about 40° . There is plenty of shaly clay which, even while fairly dry, could hardly be trusted to keep half as steep a slope, and which, when wet, would soon spread itself out into a horizontal mass.

Failures in rock foundations, if uncommon, are difficult to guard against. The rock, at the level of the footings, may all be equally sound and equally hard, and yet, at a little distance beneath, fissures and cavities may exist which no one knows of. Our readers may remember, three or four years ago, the unaccountable fall of the central tower at Barmouth new church. The tower was by no means lofty, the span of the tower-arches was only moderate. They had, to all appearance, ample abutment, and the rock on which the building stood was of the hardest description. But an artificial terrace had been cut out in the mountain-side to receive the structure, and this terrace was afterwards enlarged by blasting. It seemed probable that either in its formation or its enlargement, the rock foundation had been shattered: unless, indeed, the shaking caused by the explosions had acted directly on the recently-built work of the tower and its supports, and so caused the calamity.

Settlements may be produced from bad concrete or imperfectly-built footings. Some builders seem to think that any sort of bricks, from shuffs to clinkers, are good enough to go underground. Now, it is obviously true that color here is of no consequence. As far as that goes, the bricks may as well be black as white, or red. But it happens that in a London brick clamp, the dark or vitrified bricks are almost always the bent or twisted ones: and a bent brick will break and settle with a very little pressure on the top of it. Some mysterious settlements may perhaps be explained by remembering this obvious fact. When the concrete in a foundation fails, it is generally through carelessness in mixing, or badness in the materials. Concrete properly made with one part of the best Portland cement to two of sand, and six of clean beach shingle, will require thirty tons per superficial foot to crush it when three months old; but if imperfectly mixed, or not entirely free from loam or dirt, it will give way with a small fraction of this weight. So it will, if the cement is allowed to set and is then "knocked up" again with water; but this fault, from the nature of the case, is rarer in concrete than in brickwork.

A common evil is the building of brick arches and brick piers with soft rubbers. The architect is tempted to employ them from the ease with which they can be cut to shape; but in features which bear a heavy load, this softness is really a drawback, and not a recommendation. The builder of the last generation rejoiced in his camber arches of malm stocks, and in thousands of cases these arches have cracked and allowed the superstructure to settle. The modern architect is fond of using orange-red rubbers in similar positions, and time may, probably, show that he does it with a similar result. At any rate, such bricks should not be trusted to where the load is heavy. The piers should have in addition a solid core, and the arches a sufficient quantity of half-brick rings above

or behind those of the weaker material; and this suggests another way in which unsightly cracks arise. A facing of gauged work with fine joints is commonly attached to a backing of ordinary brickwork, which has comparatively thick beds of mortar. After a time, the mortar in the backing gets compressed, and in a height of ten or twenty feet, the work sinks perhaps a quarter or half an inch. Now if it stood alone, this would matter little; but the facing is attached to it, and this facing, having thin beds, scarcely sinks at all. Yet, the weight behind must pull it down, and as it cannot come down in a plane face, it bulges and cracks. The same thing happens with stone quoins or stone jambs bonded into brick walls. The joints of the stone are not only finer, but fewer than those of the bricks: hence, the latter settle down, and the stone has to bear all sorts of irregular strains.

Columns are liable to crack from many causes. We have known all the nave piers of a new church to fail for want of a simple calculation as to what weight was coming on them, and how much they would safely carry. In this case, they were of Corsham stone, which cannot be trusted with more than $1\frac{1}{2}$ cwt. on the square inch as a permanent load. Had they been of hard York, which will safely bear 6 or 8 cwt. on the same area, they might be still remaining. The London contractor thinks nothing equal to Portland stone; but this, as to many of its qualities, is a mere superstition, and it is especially so as to its resistance to crushing. Corsham stone will bear a little more than Box Ground, Caen a little more than Corsham, and Portland a little more than Caen, but none of them have half the strength of the North of England sandstones. Columns, however, more often fail through faults connected with their bedding than through the actual weakness of their material. We once found a foreman of the old school packing up the space between the foundation of a great tower-pier and the pier itself with bits of broken brick, slate and tile! This pier had three hundred tons to carry, and though it did not fail, because the foreman's method of jointing was discovered and amended in time, mysterious settlements appeared in other places, and were found to be the result of similar practices. Hollow beds are a notorious cause of unsightly cracks in piers. The beds of stonework should be perfectly true and square; but if there must be an error, let it lean to virtue's side — or, in other words, let the beds be almost imperceptibly convex. The slightest hollowness throws the weight on the edges of the stone, and the upshot is that these edges, or some of them, flake off. We have a well-known instance in the granite piers in Farringdon Street, which support the Holborn Viaduct.

Cracks due to insufficient abutment for important arches are serious. But it is surprising to see how an arch will sometimes adapt itself to the weight it has to carry, losing, indeed, its original form, and most of its beauty, but fitting itself for, and actually doing, the work laid upon it. The great tower arch at Newark will recur to the mind of everyone who knows it, as an illustration of what we mean. It has changed surprisingly from its original Gothic shape, having even become lop-sided from unequal pressure. Yet it has stood safely for centuries, and may stand for centuries more. The old church at Grosmont, skilfully restored by Mr. J. P. Seddon many years ago, showed another case of insufficient abutment. Here the strain from below the central tower, in the course of ages, had pushed the long row of nave piers much out of the upright, and even threatened to overturn the western wall. But the cracks which are traceable round central towers in many of our cathedrals arise rather from unequal sinking of walls than from want of resistance to the tower arches. Norwich, in spite of its lofty spire, is remarkably free from them. Examples, however, are easily found, and in most of them the origin of the evil is the great difference in weight between the central tower and the walls which surround it.

It may seem at first that a cause which affects a great cathedral tower cannot much concern us, who are not likely to have cathedrals to build. But this cause is also one of the commonest of those which produce cracks and settlements in smaller buildings. Wherever a low porch comes out from a high wall, or a low wing from a higher building, there is liable to be a crack at the junction from unequal sinking. We do not mean by this, unequal sinking into the ground on which the building stands. If the area of the concrete is evenly proportioned to the weight on it, a sinking of this sort will not occur. But cracks and settlements may still appear, as they very often do, in such a place. The cause of them, as of some others we have noticed, ultimately lies in the mortar-joints. If a house is fifty feet high, and its projecting porch only ten feet high, there will be a pressure on the mortar beds of the house-wall where it joins the porch of perhaps two or three tons per foot super.; while on those of the porch-wall, which bonds into it, there will be hardly any pressure worth mentioning. The result is that the house-wall sinks down slightly, while the porch-wall does not; and so the bricks which bond the one to the other get cracked across. A similar cause brings about, or is liable to bring about, the same result in all sorts of places where any part of a building, with great weight on it, is fixed to another which carries little weight. A good plan is to build the heavy part first, and let it get its sinking done, before the light part is attached to it; and another way is to connect the two, not by bonding bricks, but by a chase, so as to allow of some vertical movement. Bonding can then be effected by wrought-iron ties, which will bend and not break.

Settlements of walling from shrinkage of timbers or decay of timbers belong, as a rule, to second-rate or third-rate work. Brick-

work should not rest on plates built into the wall; and lintels should have discharging-arches over them. We have said nothing of the mode of building which brought down the tower of Chichester Cathedral, and threatened that of Peterborough, because the making up of vast columns out of a shell of ashlar and a core of worthless rubble is not practised in the present century, even by our friend, the jerry builder. — *Building News*.



THE CHICAGO ARCHITECTURAL SKETCH CLUB.

THE Sixth Annual Competition for the Robert Clark Testimonial, under the auspices of the Chicago Architectural Sketch Club of Chicago, will be held under the following conditions:

The competition is open to architectural draughtsmen under thirty years of age, residents of the United States, and not practising architects.

The author of each design must execute all drawings without assistance, and non-adherence to these conditions will cause the rejection of the design or designs in question.

The awards will be made by the Adjudicating Committee on the "Robert Clark Testimonial" competition and are: First Prize, Gold Medal; Second Prize, Silver Medal; Third Prize, Bronze Medal.

Those designs receiving Honorable Mention will receive special Bronze Medals.

The prize-drawings are to become the property of the Chicago Architectural Sketch Club.

PROGRAMME.

A design for the façade of an "Art Club" House in Classic or Renaissance style, the building to be situated on a residence boulevard.

The building shall be 80 feet in width, situated on a lot 100 feet in width and at a distance of 25 feet from the inside line of the sidewalk. The lot is not situated on a corner, and little or no attention is to be paid to the sides of the building, beyond indicating the proper return of the cornice, etc., in the perspective.

The rooms which require expression and which take their light from this front are: First story, — an entrance located in the centre and a single room on either side, to be used as reception and reading rooms; Second story, — a large banquet hall located in the centre, and a small unimportant room on either side, which can be lighted from the front or from the sides at the discretion of the competitor; Third story, — the third story is devoted to bed-rooms, to be arranged at will.

The drawings required are: an elevation, at a scale of one-fourth of an inch to a foot, rendered in line with pen-and-ink without shadows or other embellishments, and a perspective rendered at will. They are to be mounted upon stretchers or heavy card-board 29" x 40", and must be marked with a device or *nom de plume*. An envelope marked in a similar manner, and containing the name and full address of the author, with place and date of birth, must accompany each design.

Drawings must be delivered to John Robert Dillon, Secretary, Chicago Architectural Sketch Club, at the Club House, 274 Michigan Avenue, Chicago, on or before Thursday, November 15, 1894, charges to be prepaid. All drawings not receiving prizes will be returned at the expense of the contributor.

The Adjudicating Committee on the "Robert Clark Testimonial":
W. B. MUNDIE, Chairman.
FRANK L. WRIGHT.
IRVING K. POND.

THE NEW YORK SKETCH CLUB.

THE regular monthly meeting and dinner of the New York Sketch Club was held at the club-rooms, Saturday, September 8. About thirty-five members were present. President E. A. Josselyn occupied the chair. Mr. Ernest Flagg, who was the guest of the Club, spoke interestingly on the methods of the "Beaux Arts" and the advantages of a thorough education for architects. Mr. Frank Hays and Louis Hickman of the Philadelphia T-Square Club were introduced. Mr. Hickman spoke of the advance made in the project of competitions between Sketch Clubs. The President announced that a programme would be issued this month of the above competitions. Also that Mr. Flagg's studio would open this month and that it would be free this term. Mr. Clarence A. Fullerton was elected Chairman of the House Committee to succeed Mr. Pollard, resigned. H. C. PITTMAN, Recording Secretary.

CLAPBOARD. — The name "clapboard" for a narrow board used to cover the sides of houses has been supposed to be an Americanism, but it was brought to this country by the early English colonist. According to very old dictionaries published in England, clapboards were thin boards formed for the manufacture of casks. They were originally cloveboards, because they were "cloven" by hand. In course of time, the word was abbreviated to clobboards, clabboards and clapboards. — *Exchange*.



[Contributors of drawings are requested to send also plans and a full and adequate description of the buildings, including a statement of cost.]

A COLONIAL HOUSE NEAR BOSTON, MASS. MR. JAMES T. KELLEY, ARCHITECT, BOSTON, MASS.

[Gelatin Print, issued with the International and Imperial Editions only.]

TRINITY SCHOOL BUILDING, 91ST STREET, NEW YORK, N. Y. MR. CHARLES C. HAIGHT, ARCHITECT, NEW YORK, N. Y.

SKETCHES OF ITALIAN GOTHIC WINDOWS BY MR. J. W. CASE, LATE HOLDER OF THE ROTCH TRAVELLING-SCHOLARSHIP.

OLD WILLARD TURNPIKE TOLL-GATE, ADAMS, IND. SKETCHED BY MR. T. OSBORNE, INDIANAPOLIS, IND.

THE DWIGHT HOUSE, SPRINGFIELD, MASS. SKETCHED BY MR. G. C. GARDNER, ARCHITECT, SPRINGFIELD, MASS.

SEE article elsewhere in this issue.

THE PORTER HOUSE, HADLEY, MASS. MEASURED AND DRAWN BY MR. G. C. GARDNER, ARCHITECT, SPRINGFIELD, MASS.

DETAILS OF THE SAME.

[Additional Illustrations in the International Edition.]

STABLE OF E. F. SEARLES, ESQ., KELLOGG TERRACE, GREAT BARRINGTON, MASS. [Copper-plate Etching.]

A VILLA IN THE ENVIRONS OF PARIS, FRANCE. MR. E. LEMAIRE, ARCHITECT. [Copper-plate Etching.]

THE IRISH VILLAGE, WORLD'S COLUMBIAN EXHIBITION, CHICAGO, ILL. [Gelatin Print.]

"WHEATFIELD LODGE," HEADINGLEY, YORKSHIRE, ENG.: THE GALLERIES. MR. T. BUTLER WILSON, ARCHITECT.

BILLIARD-ROOM OF THE SAME.

NEW WESLEYAN CHAPEL, ARGYLE STREET, HULL, ENG.

THIS building, which is now in course of erection on a site in Argyle Street, Hull, is in the Waltham Street Circuit. The chapel is designed in a free Romanesque style, and will be built of bricks, faced with Lincolnshire red facing bricks, with dressings in Howley Park and Ancaster stone. The turrets will be framed in oak covered with lead, and the windows will be glazed with leaded lights. The ground floor will fall eighteen inches towards rostrum. The pewing and all inside joiners' work will be in redwood, stained slightly and varnished. The ceiling will be in plaster, with modelled plaster panels, and coved on wall sides.

Accommodation will be provided in the chapel for nearly 1,000 people, with vestries, etc., at the rear, the total cost being about 3,300l, exclusive of land.



[The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.]

WHITE PORTLAND CEMENT.

SANDUSKY, OHIO, September 7, 1894.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sir, — I note the paragraph in your periodical of the 18th ult., stating that a considerable demand exists for white Portland cement. In regard to this, would say that we have at our factory the materials for making a white cement, and have made the same on an experimental scale. At present, the capacity of our factory is fully taxed to supply our orders for ordinary Portland cement. We expect, however, within a few weeks to begin the manufacture of white cement on a commercial scale. Tests of the same have shown it to be superior in strength and hardness to ordinary Portland cement, as freedom from iron gives white cement superior setting and hardening qualities.

Very truly yours, S. B. NEWBERRY.

EXHIBITIONS

BOSTON, MASS.—Annual Summer Loan Exhibition of Paintings; also, New Accessions to the Print Department: at the Museum of Fine Arts.

BRIDGEPORT, CONN.—Exhibition of the Sella collection of photographs of Alpine and Caucasian scenes: at the Public Library Art Gallery, September 8 to October 27.

CINCINNATI, O.—Special Exhibition of Paintings: at the Art Museum, during September.

NEW YORK, N. Y.—Second Annual Summer Exhibition of American Paintings: at the Fifth Avenue Art Galleries.

Twenty-sixth Annual Spring Exhibition: at the Metropolitan Museum of Art, opened May 8.

Group Exhibition by American Painters—William M. Chase, J. Alden Weir, Childe Hassam and others: at the Galleries of the American Fine Arts Society, 215 West 57th Street.

PHILADELPHIA, PA.—Sixth Annual Exhibition of the Art Club of Philadelphia: opens November 19, closes December 6.

PROVIDENCE, R. I.—Loan Collection of Paintings: at the Art Club, during September.

NOTES AND CLIPPINGS

THE GREAT VIENNA HAILSTORM.—Shortly before seven o'clock on the morning of June 7, Vienna was visited by a terrific hailstorm, the like of which has never before been witnessed in the Kaiserstadt. The last great hailstorm, in 1848, was exceeded in violence by this one. There were numerous accidents, some of which proved fatal. Deaths were caused in three cases by falling trees. Many horses took fright, and their bolting was the cause of a number of more or less serious casualties. The worst of these occurred in a field outside Vienna, where a detachment of artillery, with thirty-two guns, was overtaken by the storm. The horses attached to the guns became unmanageable and ran away in all directions. In a few minutes, thirty soldiers lay helpless on the ground. Several were run over, one of them being killed. Three officers were also severely injured. In the town itself a large number of people who could not find shelter in time were much hurt by the falling hail. The stones were on an average the size of hazel-nuts and came down in streams. It was about a quarter to seven when the first signs of the rising storm became visible. Dense clouds of a copper-red hue darkened the sky in the southwest. They rose with alarming rapidity until they covered the firmament and produced semi-darkness. A violent hurricane drove up the dust in columns to the height of the fourth floor of the houses. The hail, which was preceded by heavy drops of rain and accompanied by slight sheet-lightning, lay, in the course of a few minutes, six inches to eight inches thick on the pavement. The noise can best be compared to that of a severe storm at sea. The appearance of the capital, which at this time of the year looks its best, was transformed in less than a quarter of an hour into that of a besieged town which had been bombarded. Upwards of a hundred thousand windows were smashed. In one government building, the Ministry of Commerce, over five hundred panes of glass were broken. The Palace itself had six hundred panes smashed. On the upper floors of the wing, where the Emperor's quarters are situated, hardly a window remains intact. In a large mill on the Danube, which contains over four thousand panes of glass, only about fifty escaped. According to Austrian law, the landlords will have to replace the broken glass. — *London Times*.

AN AGREEMENT WITH THE TYNESIDE BOILER-MAKERS.—A remarkable agreement has just been effected between the Tyne, Wear, Tees, and Hartlepool shipbuilders, and the executive council of the Boiler-makers' and Iron and Steel Shipbuilders' Society, one of the most important trade-unions in Great Britain. In respect to wages, it sets forth that no general alteration shall be made until after six calendar months have elapsed from the date of the last alteration, and no single alteration can exceed five per cent. Four weeks' notice in writing is to be given. Previous to such notice being given by either side, a request for a meeting between the associated employers and the Boiler-makers' Society must be given by the party intending to give notice; this meeting is to be held within fourteen days after the receipt of the request. Failing agreement during the month's notice, the notice may be extended to any time not exceeding another month, if acceptable to both parties; but, whatever the settlement may be, the advance or reduction (if any) will begin from the expiration of the first month's notice. Should a settlement not be effected, the question may be dealt with as may seem best. Sectional or individual disputes, in the first instance, are to be referred to the Society's officials and the employer or his representatives. If any dispute takes place respecting the price of work, the job is to be proceeded with as on piece, and, whatever the price may be when the dispute is settled, the same will be paid from the beginning of the job. Failing a settlement by ordinary means, the terms of settlement are to be adjusted by a committee representing employers, and the Boiler-makers' and Iron and Steel Shipbuilders' Society within fourteen days. Power is also given to each side to ask for a revision of rates in certain contingencies, and it is stipulated that work in all cases shall be proceeded with without interruption pending the settlement of a dispute, whether as to prices or otherwise. A standing committee of three on each side (exclusive of the delegate on each side) is to be appointed for each river to consider local disputes.

The scheme is to be tried for a period of five years, to be afterwards terminable by six months' notice on either side. The result of the voting by the men upon these proposals was as follows: For, 15,950; against, 11,840; majority for, 4,110. — *N. Y. Evening Post*.

MEISSONIER'S HOUSE.—The dream that cheered the declining years of the great artist, Meissonier, was never destined to be realized, and in a few days the beautiful house which he built himself in the Boulevard Malesherbes, in the hope that it might be preserved as a monument of his genius, will have vanished under the pickaxe and crowbar of the relentless contractor. It was in the year after the war that the painter, then in the zenith of his fame, bought a plot of land from the Pereires, and with his own hand drew the plans of the handsome Renaissance dwelling which for twenty years was the rendezvous of all the literary and artistic world. Every detail of the delicate carving was traced by the master, and the woodwork and furniture were faithfully copied from Venetian models. Upon the studio, a noble room, the minutest care was lavished, though the sculptured mantelpiece which Meissonier intended to execute never saw the light. The walls were covered with choice productions of his brush, and fine proof engravings by Walther, Jacquet and other wielders of the burin. Meissonier was a poor man, and a letter of his is extant in which he expresses distinctly the idea that the State might buy his house and its contents as a national museum, allowing his family to live there in the capacity of curators. Such a project could hardly be regarded as practicable, nor did it for a moment commend itself to his prudent compatriots. The pictures were dispersed under the hammer, and the house is rapidly being resolved into shapeless heaps of rubble. — *The Pall Mall Gazette*.

TYPHOID-FEVER—IN MEMORIAM.—According to a newspaper report, one of Alleghany's philanthropic select councilmen proposes to present a drinking-fountain to that fair city. As all well-regulated fountains should have an inscription, the *Pittsburgh Medical Review* suggests the following:

"Erected to the memory of one hundred and sixty-one citizens who drank of this water and died of typhoid-fever during the year 1893. This water is warranted to be drawn from the Alleghany River at a point where the discharges of eighteen sewers of Pittsburgh are mingled with the stream, and each drop contains on an average two hundred bacteria." And adds:

"These eighteen sewers drain an area of seven thousand acres—more than two thirds of the entire territory of Pittsburgh, exclusive of the South Side. Some of them pour their contents into the river a short distance above the influent pipes of the Alleghany water-works, while others are situated irregularly for five miles above, so that the entire volume of water must become contaminated by the Pittsburgh sewers, not to mention the surface drain from upper Alleghany and the numerous towns along the Alleghany and its tributaries. The discharges from the West Penn Hospital patients find their way into the river at a point that is specially well adapted for transference into the Alleghany reservoir, and as many fever patients are treated there during the summer and fall months, when the stage of the water in the river is usually low, the prevalence of fever and death in Alleghany is to be expected, and the source of the infection is not difficult to trace."

WEATHER AND THE MIND.—The psychology of the weather is suggested by Dr. T. D. Crothers as a promising subject for study. He says, in *Science*: "Very few persons recognize the sources of error that come directly from atmospheric conditions on experimenters and observers and others. In my own case I have been amazed at the faulty deductions and misconceptions which were made in damp, foggy weather, or on days in which the air was charged with electricity and thunder-storms were impending. What seemed clear to me at these times appeared later to be filled with error. An actuary in a large insurance company is obliged to stop work at such times, finding that he makes so many mistakes, which he is only conscious of later, that his work is useless. In a large factory from ten to twenty per cent less work is brought out on damp days and days of threatening storm. The superintendent, in receiving orders to be delivered at a certain time, takes this factor into calculation."

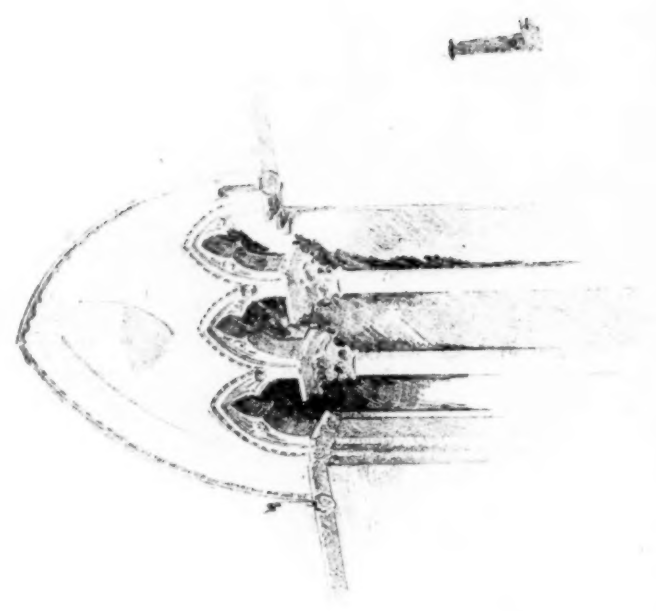
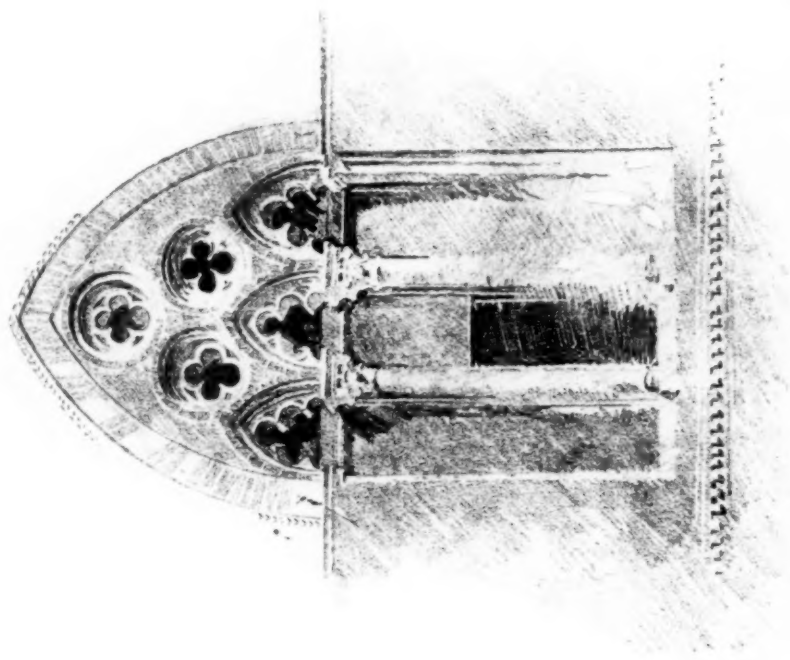
NEW CANDELABRA FOR ST. PAUL'S.—An interesting addition has just been made to the furniture of St. Paul's Cathedral, London, in the shape of two colossal bronze candelabra, copies of famous originals at Ghent. A curious history attaches to them. Cardinal Wolsey, when in the heyday of his power, set about preparing a sumptuous tomb for himself in the Wolsey (now the Albert) Chapel at St. George's, Windsor. Before it was completed his fall came. The sarcophagus—of black marble—intended for the cardinal ultimately became the resting-place of Nelson in the crypt of St. Paul's. The four giant candelabra by Torregiano, designed for the corners of Wolsey's sepulchre, were presented by Henry VIII to old St. Paul's. Being covered with gold-leaf, they were valuable, and a century later they were sold by Cromwell to the authorities of Ghent Cathedral, where they have remained ever since. — *N. Y. Evening Post*.

A CASTLE THAT COST FOURPENCE.—On the estate of Lord de Vesci, near Cork, is a castle which was built for fourpence. The credit of building a large, roomy castle for this small sum belongs to a lady—Anastasia, the wife of John Archdeacon. In 1638, during the absence of her husband at the wars, she determined to surprise him on his return by having a castle ready to receive him. Accordingly she engaged a number of workmen with whom she made an agreement that while engaged on the work they should purchase clothes and provisions entirely from herself. She is said to have managed the transaction so skilfully that on balancing accounts, she was only fourpence out of pocket. — *Freeman's Journal*.

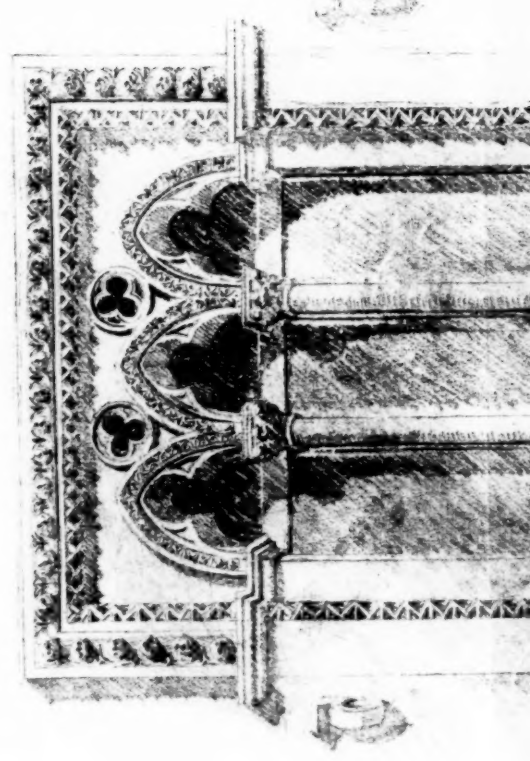
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AMERICAN ARCHITECT AND BUILDING NEWS, SEPT. 15, 1894.

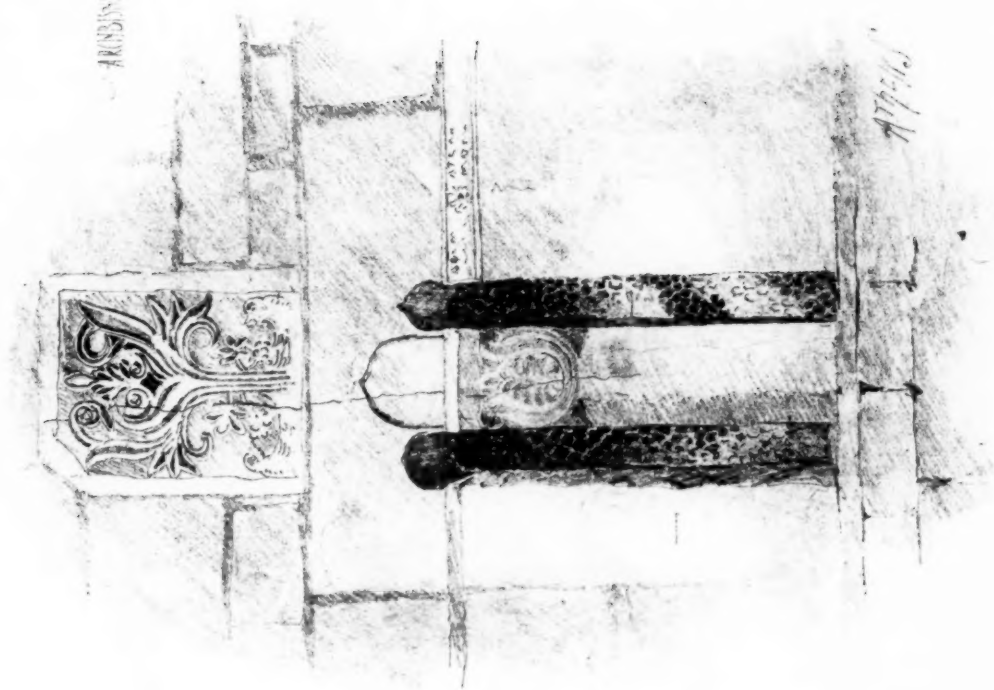
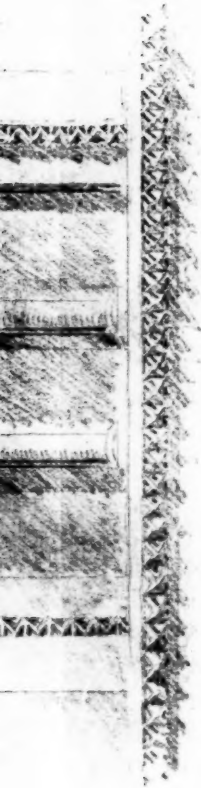
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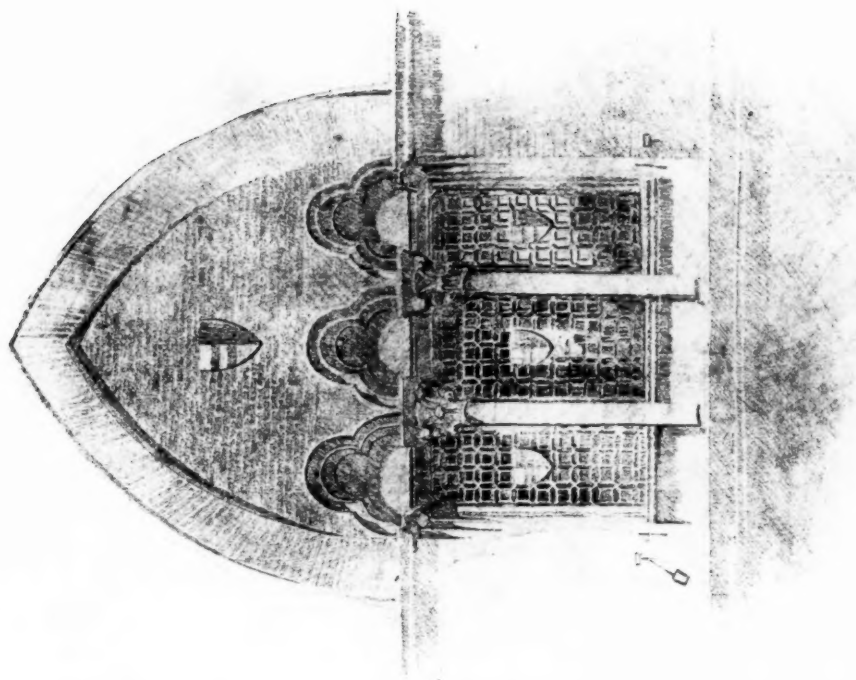
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DESIGNED BY THE ARCHITECT, A. J. JOHNSON, N. Y.



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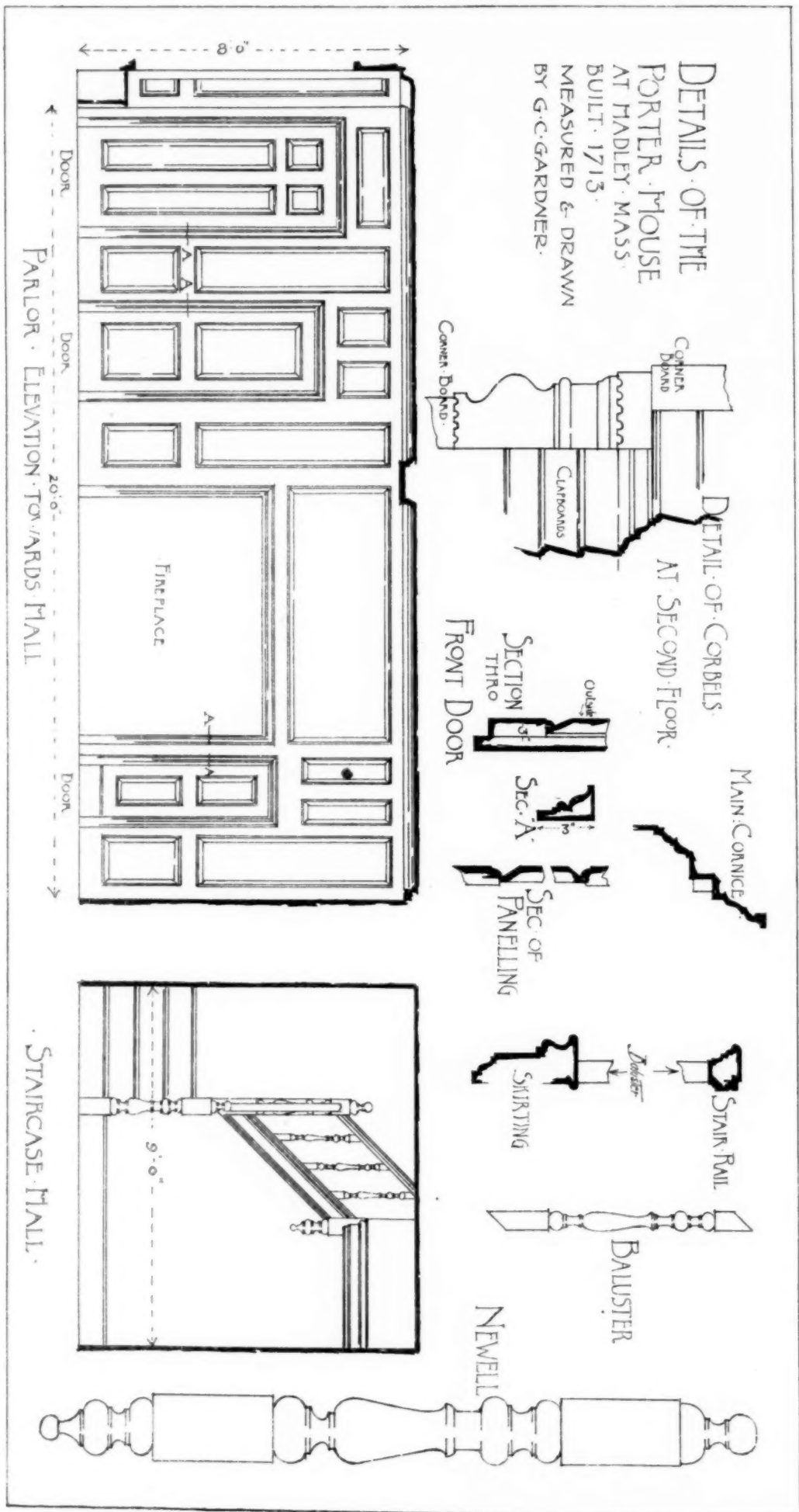


1105 Milanese
JAN 93

ITALIAN GOTHIC WINDOWS.
 Sketched by J. W. CASE, Late Holder of the Rotch Travelling-Scholarship.

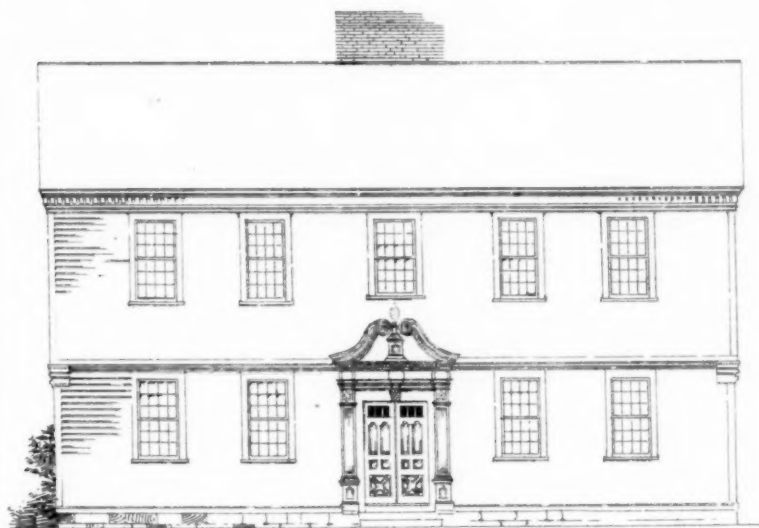
PAZZA VITTORE EMANUELE ROMA
 1876

REPRODUCED BY PERMISSION OF THE
 BOARD OF ARCHITECTS

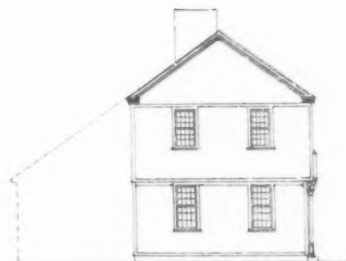


HOUSE AT HADLEY, MASS.
BUILT IN 1713.

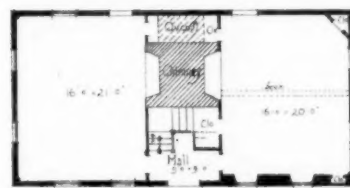
MEASURED & DRAWN BY G. C. GARDNER.



Front Elevation



North End Elevation

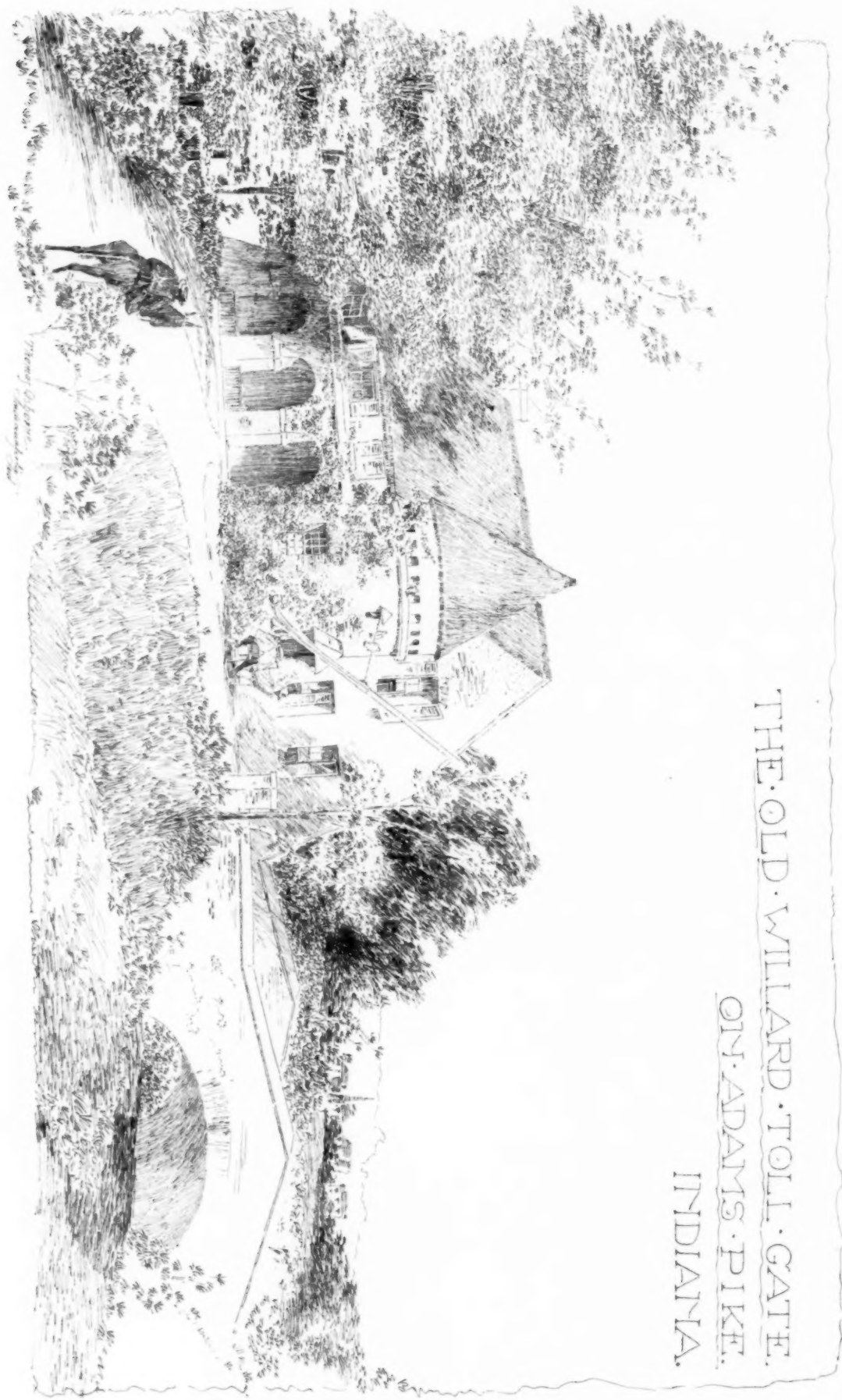


Ground Plan

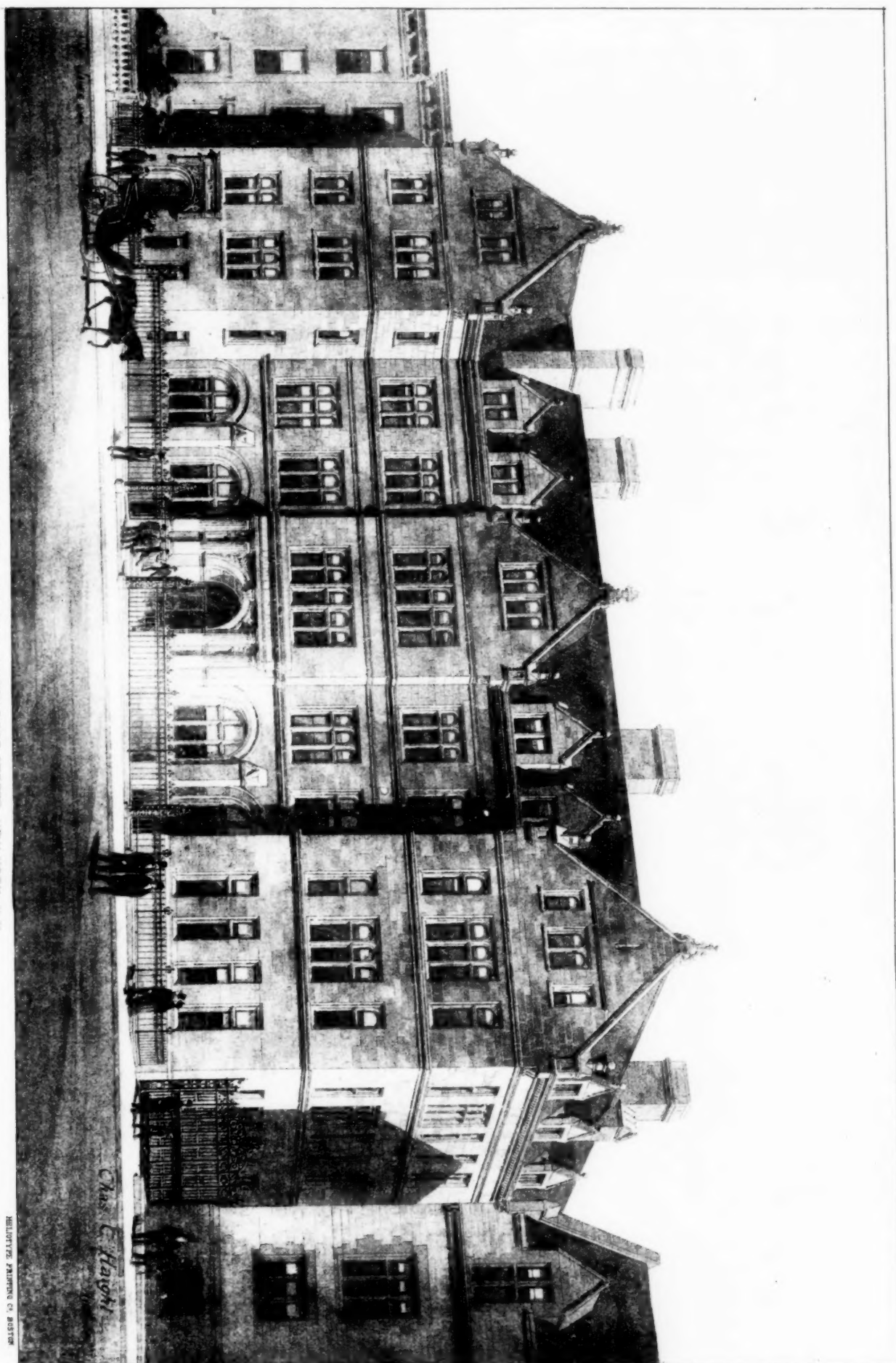
JOSIAH DWIGHT HOUSE, 1764, SPRINGFIELD, MASS.

Sketch by G. C. Gardner.





THE OLD WILLARD TOLL GATE.
ON ADAMS PIKE.
INDIANA.



TRINITY SCHOOL BUILDING, NINETY-FIRST STREET, NEW YORK, N. Y.

CHARLES C. HAIGHT, Architect.

MILLONER, PRINTING CO. BOSTON