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CONTENTS.

SUMMARY:—

The Attitude of Italy on the American Tariff on Works of Art.	
—The Recent Baltimore Warehouse Accident.—Construction of the Building and the Manner of its Fall.—Fire-Loss caused by Iron Shutters.—Annual Report of the R. I. B. A.—The Results of the Compulsory Examinations and the Competition Reform Movement.—The Russian Petroleum Industry at Baku.	289
STAIRCASES.—II.	291
ARCHITECTURE AT THE ROYAL ACADEMY.—II.	292
CONDUCT OF COMPETITIONS.	293
THE ILLUSTRATIONS:—	
Union Club-House Interiors, Chicago, Ill.—The Nevins Memorial Hall, Methuen, Mass.—The Claflin Building, Boston, Mass.—New State Armory, Troy, N. Y.	294
BOOKS OF REFERENCE.	295
THE PARIS SALON.	295
OLD CHRIST CHURCH, ALEXANDRIA, VA.	296
SEWAGE IN THE THAMES.	297
POTTERY IN WALLS.	298
COMMUNICATIONS:—	
As to Mill-Construction Methods.—A Cure for a Wet Cellar.—A Correction.	298
NOTES AND CLIPPINGS.	299

A GOOD point has been made by Signor Mancini, the Italian Minister of Foreign Affairs, in speaking before the Chamber of Deputies in regard to the United States law which discriminates against foreign artists who send their works to this country, in favor, as is supposed, of American painters and sculptors residing abroad. The Italians, perhaps more than any other people, regard the practice of the fine arts as a purely commercial matter, and the enormous impost laid by the United States upon one of the principal products of the national industry has interfered with the business of a great number of deserving persons, without benefiting anybody, perhaps, except forgers and peddlers. The Government of Italy was appealed to some time ago to interfere in behalf of the Roman and Florentine artists, but, with characteristic courtesy and good sense, forbore to take action so long as there should be any prospect that the present Congress would modify the law. Now, however, the hope of this having vanished, Signor Mancini informs the Chamber of Deputies that his Government will take measures for obtaining compensation from the United States for the injury done to Italian subjects by the present tariff law, which is, as he declares, a violation of the existing treaty of commerce between the two countries. Not knowing what the text of this treaty of commerce may be, we will not hazard any opinion as to the technical justice of Signor Mancini's claim, but of its substantial propriety there can be no doubt, and we may yet have to pay a large sum of public money as compensation for the injury caused by this ridiculous and contemptible piece of legislation. In the interest of the people of this country, however, we trust that means will be found, by gentle reprisals, of teaching the members of Congress a lesson which, it is to be further hoped, they will be allowed time to study and profit by. Besides the exclusion of Americans from foreign schools of art, which is now strongly urged abroad, there are many ways in which the French and Italians can imitate our spirit toward them in a manner which would give us great annoyance. In New York, for instance, there are one or two Italian bankers who draw bills of exchange upon correspondents in their own country. To apply the American principle to their business, there is no reason, if our tariff on pictures and sculpture can be justified, why the Government of Italy should not forbid any drafts, unless drawn by these bankers, to be honored in that country, or, at least, without the deduction of a tax of twenty-five or thirty per cent. Such action on the part of the Italian Government would be simply the encouragement, on the American plan, of the industry of its citizens residing in foreign parts, and however trying it might be to American bankers and travellers to have their circular-letters thrown back on their hands, the inconvenience to them would be trifling compared with the distress which has fallen upon hundreds of worthy Italians through the silly freak of our Congress.

THE fall of the warehouse in Baltimore, which we mentioned in our last issue, has been the occasion of an inquest, at which a remarkably clear and sensible expert report was presented, signed by a well-known architect, Mr. Frederick, and a number of builders. The testimony offered in the early part of the inquest was of the usual character, one person who evidently knew nothing of the subject bearing witness that the warehouse which fell was built by his brother, with a "desire to make it as substantial as possible," and "with a view of sustaining a great weight;" but the jury was wise enough to cut this sort of evidence short, and save its own time and that of the witnesses by calling at once for the opinion of those who had some qualifications for forming one. As spokesman for these, Mr. Frederick reported that he and his colleagues had examined the ruins of the building, a proceeding, by the way, which experts do not always consider necessary; and had found that the beams of the floor were of hard-pine, three by thirteen inches, and about fourteen and one-half feet span. We do not find the distance of the beams from centres, but the experts, who of course took this factor into consideration, estimated that the beams were capable of carrying with safety a centre load amounting to two hundred and eighty-five pounds for each square foot of floor. It is not very evident why the beams should have been calculated for a centre load, which could never be applied to them, instead of a distributed load, which was what they actually had to sustain; but a little labor was saved in calculation, and the results are clear enough.

THE beams, which are thus shown to have been strong enough, according to the usual practice, for sustaining the weights generally found in warehouses devoted to the lighter kinds of goods, rested at one end in the wall, and at the other on a line of girders, which divided the floor in the middle. The timbers composing this line of girders were also of hard-pine, twelve by sixteen inches in the upper stories, and twelve by eighteen in the lower ones, all fifteen feet long from centre to centre of the columns supporting them, or something over fourteen feet clear span. As will be seen at once, even if the girders were not mortised, the strongest of them would have less than two-thirds the strength of the floor which they were supposed to sustain; so that, under the most favorable circumstances, one-third of the joists in the lower stories, and about one-half of those in the upper stories were wasted, adding nothing whatever to the strength of the floors, which would fail by the collapse of the girders long before the joists could break. The columns which carried in the first story, the girders of this "substantial" building were of cast-iron, sixteen and two-thirds feet long, seven inches in diameter at the bottom of the shaft, and six inches at the top, with a thickness of metal varying in different specimens from five-sixteenths of an inch to one inch. In some of the columns the core was found to have followed the profile of the capital, diminishing further the strength of these miserable posts, on which rested five heavily loaded floors, besides the roof.

THE walls of this precious structure, whose owners seem to have been singularly unsuccessful in their efforts to adapt it for "sustaining a great weight," were of a piece with the rest. The north wall, which carried seven tiers of beams, was twelve inches thick from the foundation to the top of the third floor, and eight inches thick thence to the roof; while the south wall was about four inches thicker. Nearly all the materials used in the building were bad. The mortar was so poor that the bricks were taken from the ruins nearly clean, while the timber was found by Mr. Frederick and his friends to have been exhausted of its sap, and was estimated by them to have lost forty-five per cent of its strength in consequence. Besides all this, several of the girders were affected with dry-rot, and one was found to be so worm-eaten as to have lost at least one-half its strength. It will be observed that a stick which in its best estate would only sustain one-half the weight intended to be placed upon it, and whose strength was, moreover, diminished to one-fourth of its normal amount by worms and rot, would be regarded, even by the most indulgent critic, as an element of weakness in a building, and the Baltimore experts were of opinion that the first failure took place in one of the fourth-story girders, about midway between the columns, although they added that it might have occurred anywhere on the

premises, and that they were surprised that it should have been delayed so long. Most of our readers will probably agree with them in this conclusion, and will warmly applaud the suggestion made by the jury in their verdict—that it would be well to appoint some competent person to examine other warehouses used for storage, "to prevent a recurrence of the above-mentioned deplorable accident."

THE *Fireman's Journal* mentions that at a fire which occurred a week or two ago in New York, the efforts of the firemen were almost entirely baffled by the iron shutters of the building, which made it impossible to throw water upon the fire. The shutters seem to have been stronger than usual, and the men worked over them for three hours before they succeeded in opening a single one which allowed them to reach the burning merchandise. Many such cases are reported, and there is a general feeling among fire-engineers and insurance men that some method should be adopted without delay for enabling firemen to open iron shutters from the outside in case of need. The obvious difficulty about such an arrangement is that burglars would certainly take advantage of the facilities intended only for the firemen, to plunder at their pleasure the stores of costly goods contained in the warehouses about which the insurance officers feel so much solicitude, and as the owners of these goods, by the payment of a small premium, are guaranteed against damage by fire, no matter what the construction of their buildings may be, while there is no insurance against loss by robbery, they naturally prefer, if they are prudent men, to protect themselves against dangers, the consequences of which they will have to bear alone, rather than against those for which the underwriters assume the responsibility. The *Journal*, with its usual good sense, points out that burglar-proof shutters which firemen can open from the outside are absurd, and expresses the opinion, in which, from the firemen's point of view, every one will agree with it, that the best way would be to keep iron shutters always open, trusting the firemen to close them in cases of necessity, which would only occur where fire was likely to break out from a building already burning, and attack neighboring structures.

THE Annual Report of the Council of the Royal Institute of British Architects has just been made public, and contains many items of interest. The Royal Institute has now twelve hundred and seventy-three members, including four hundred and nine Fellows, six hundred and ninety-one Associates, and one hundred and seventy-three honorary members. The annual income amounts to about eighteen thousand dollars, and the expenses to something over sixteen thousand, leaving a balance to be added to the reserve fund, which already amounts to nearly twenty-five thousand dollars. As compared with our own Institute of Architects, which counts hardly one-fourth as many members, the British Institute seems indeed prosperous; but we may comfort ourselves with the thought that the American body through its affiliated chapters, maintains an influence in the profession and among the public quite out of proportion to its actual membership. The report goes on to say that new relations have been entered into with foreign societies in several different ways, questions proposed by the British Institute having been read with interest, and answered, by men distinguished in the profession in Berlin, Vienna and Copenhagen; while a regular interchange of publications with the Societies of Architects of Amsterdam, of Norway, and of our own Boston Society has been begun.

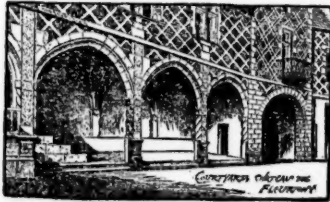
THE compulsory examination for admission to the Institute has proved to be of great value, both in maintaining the character of the membership, and in encouraging effort on the part of students. Two examinations have been held during the year at which thirty candidates presented themselves, and twenty-one, having passed successfully, were recommended for election as Associates. The most deserving of the rejected applicants are notified that they may be examined again next year without the payment of the fee which is required of all candidates, and they will all probably take advantage of the opportunity to review their studies, and fit themselves more thoroughly to receive the honor which they desire. It is worth noting that the examinations seemed to have aroused the interest of others besides the candidates in the pursuit of professional knowledge, and the library of the Institute has been used by a

far greater number of members and students than ever before. The movement originated in part by the late George Edmund Street, having in view the unanimous refusal of architects to take part in any public competition unless an architect of established reputation is appointed to advise as to the relative merit of the competitive designs, has made satisfactory progress, and nearly fourteen hundred practising architects have subscribed their names to a pledge not to engage in any public competition in which this condition is violated. It is too soon to judge of the effect of this determination, but there can be no doubt that it will soon be felt in promoting greatly the pecuniary interests of the profession, as well as in preventing a very large part of those disappointments and disgusts which have hitherto fallen so liberally to the lot of ambitious architects.

THE *Scientific American* gives some interesting details of the manufacture of petroleum at Baku, on the Caspian Sea, from which it appears that the extraordinary development of this industry within a few years is almost entirely due to the enterprise of a few trained European business men, the Nobel brothers being the most prominent among them. For ages the oil wells of Baku have served to supply the lamps of the neighboring villages, but abundant as the oil has always been, the awkward and costly methods employed for handling and transporting the product rendered it impracticable to deliver it at distant points at a price sufficiently low to enable it to compete with American petroleum. Three or four years ago, however, the production of the Pennsylvania wells began to diminish, and attention was directed to the Baku deposit. With the experience gained in Pennsylvania to guide them, and plenty of money to carry their plans into effect, the educated capitalists who first succeeded in gaining control of the oil region found no difficulty in increasing the amount, and diminishing the cost of production to such an extent that their petroleum products are now rapidly driving our own out of the markets of all southeastern Europe. Under the new management a railroad was soon built, connecting the wells with the Black Sea, and great improvements were made in the practice of collecting and preparing the oil. In place of the shallow wells, or rather springs, from which the natives dipped small quantities of petroleum, shafts are now sunk to a depth of four or five hundred feet, reaching there a deposit of oil under a great pressure of gas, which for a time forces the oil out of the mouth of the well in a jet which often rises three hundred feet above the ground. The formation in which the wells are sunk consists of strata of alternate sand and rock, and the oil, which collects in the former, carries up at first with it a quantity of fine sand, which grinds away anything with which it comes in contact. For this reason it is impossible after a well has begun to spout, to check the flow by means of covers or plugs, the heaviest plates of cast-iron being worn away in a few hours by the stream; and the engineers who have charge of sinking the wells always endeavor to close them the moment they reach the oil deposit, so the jet may not have time to gather force. The flow of oil is always preceded by an escape of gas, and while this is going on a heavy cast-iron cap, fitted with a sliding valve, is hastily screwed over the mouth of the shaft. A mass of concrete, twenty or thirty feet deep, is always put in around the upper portion of the well when operations are first begun, and the resistance of this, together with that of the iron cap, suffices to keep back the oil, although the pressure is often so great as to force it in drops through the pores of the concrete. When the gas has escaped, the sliding valve is cautiously opened, and the oil is collected, either by direct flow, or by pumping. As the oil is still very sandy, it is carried from the wells through wooden conduits to reservoirs, formed in the natural depressions of the ground, where it deposits the matters suspended in it, and is then drawn off for refining through lines of iron pipe, which lead it first into large tanks for further deposition, and thence to the distilleries on the seashore, eight or ten miles away. The products obtained from these are distributed to the Black Sea ports and the interior of Russia by railway and steamship lines, running in all directions. As with us, the economy of pipe conveyance has been found to be so great that plans are now under consideration for extending the pipe lines to great distances, one contemplating a line a thousand miles long, moving across the Caucasus Mountains to connect with the railway system of southeastern Russia, while another proposes to carry the pipes to some port on the Persian Gulf, from which the oil can be economically distributed throughout Central Asia.

STAIRCASES.¹—II.

ECCLESIASTICAL ARCHITECTURE IN ENGLAND.



IN the earlier parish churches the most usual means of gaining access to the upper stages of towers was by ladders. Many Early English, and nearly all Decorated and Perpendicular examples, however, have spiral staircases or "vises,"² inclosed in turrets, and these most usually enter from the church.³ We find them placed either in an inner angle of the tower, unseen externally, slightly projected or boldly so, or at an external angle, as at Clymington church, Sussex; Islip church, Northamptonshire; and in the many stair-turrets of Somersetshire churches, and in those prominent octagonal examples clinging tenderly to the noble fifteenth-century towers of Kent. The stairs were inclosed in square or circular projections in buildings of a Norman or semi-Norman character, but afterwards they were constructed externally on a polygonal plan. When the intended height was attained they were finished off with a simple slope back against the tower wall, as at Branford church, Suffolk, or with a pyramidal stone capping terminating in a finial, as at Bacton church, Suffolk. In many late examples they are boldly carried above the tower for access to its summit, giving a pleasing piquancy to the general effect, as at Herne church, Southfleet, or with a crocketed stone roof, as in the fifteenth-century domestic example at Magdalen College, Oxford, while we can point to the two west towers flanking the great porch at Peterborough Cathedral for a striking instance of the elegant elaboration and beauty with which, in large ecclesiastical structures, the mediæval architects could inclose their staircases.⁴ Windows in early turrets were simple oblong slits; during the Early English period small lancets were used, while subsequent to that we find forms of great variety; cruciform openings are used in the conventual buildings at Ely, quatrefoil loopholes at Oxborough, circles, squares and triangles, enriched with cusplings, at Winterton and other churches in Norfolk and elsewhere. As in domestic architecture we also have instances where the newel is carried up to form a vaulting shaft, as in Carlisle Cathedral, the twin stairs at Peterborough, and in Henry V's shrine at Westminster. An example of a double spiral stair winding round one newel—though by no means a common feature in English mediæval architecture—is to be found at Tamworth church.

FRANCE.—FROM THE EARLY PART OF THE CAPETIAN DYNASTY TO THE ACCESSION OF FRANCIS I, IN 1515.

The means of communication between different levels in the early mediæval architecture of France presented similar features to those of our own country. The gradual progress of domestic plan proceeded concurrently, and in parallel lines with that of England and Italy. Latterly each developed peculiarities incidental to its system of national life. The hall in the castle of the feudal lord, which served as the general living-room of the household and for every public purpose, was placed well up from the ground on a vaulted basement, and approached by an external flight of steps or covered external staircase, at right angles with the building or parallel to it, isolated, or alongside a wall. As in the oldest example of such covered staircases extant, the vaulted or timber roofs rested on pillars and open arches. We find such an arrangement in an isolated staircase having three flights branching in different directions in the castle of Montargis, erected during the latter half of the thirteenth century, and another in the Sainte Chapelle, in Paris, which may be taken as indicative of their treatment in large and important buildings. In the twelfth century the long, straight, uncovered flights used to ascend fortifications, where starting from the ground, were carried on piers with vaulting-arches between, the steps being profiled outwardly to give breadth and effect. M. Viollet-le-Duc cites examples in Aigues-Mortes, Avignon, Beaucaire, Carcassonne and other places. When in an elevated position so as to give access to a high tower, they are ingeniously corbelled out, or the steps hung in the wall if narrow, as we may see in miniature at Belsay castle, Northumberland. Thus was originated the principle of our modern geometrical stair, a feature so vigorously condemned by Ruskin for "its apparent want of support, and the concealed and mysterious provision for its safety."⁵ Internally, for all purposes and for reasons previously detailed, the circular form was adhered to, and remained

unchanged through a striking course of development long after the Renaissance era had been entered upon. Its application was universal; the progress and triumph rapid and complete. An impulse was given by the state of perfection to which the architecture of ecclesiastical structures had attained. Domestic architecture shared in the reflex action, and the staircases were seized on as the central and leading feature in a house best affording that scope for the display of the artistic skill and constructive ingenuity possessed by the master masons of the day. The progress was rapid, as we find in 1365 Raymond du Temple, Master of Works to the King, Charles V, engaged on the erection of the magnificent staircase at the old Louvre,⁶ which Sauval⁷ describes as a work that nothing else could come equal to. It consisted of a long circular staircase 27 feet or thereby in internal diameter, connected to the main building by two weak segments only, and decorated outside and in with statues and rich carving. The honor stair wound round a central hollow newel about 12 feet in diameter (pierced with openings for light), which was continued up to the top floor, when from that point it contained a newel stair rising to the level of the roof terrace, and crowned with a lantern and high-pitched roof. M. Viollet-le-Duc has endeavored to reconstitute this noble example from Sauval's description, the illustrations of which appear in his "*Dictionnaire*." This served as a worthy model to follow, and, indeed, we find in all subsequent large erections that the nobility, with their architects, vied in friendly rivalry to excel each other and their predecessors in the intricacy of construction, the delicacy of elaboration, and the beauty of the proportion of their staircases. The science of stereotomy and geometric skill had reached a very high state of perfection. The triumph was complete, as witness the unexampled series studded along the lovely valley of the Loire. For two centuries the staircases of France were without a parallel in Italy, in England, or in any other country. They were unique. The development of the "turnpike" of the early castles had attained perfection. While internally they perfectly fulfilled the wants of the domestic life of the period, externally they possessed a beauty, a grace, a picturesqueness which lent an incomparable charm to the whole surroundings. Towards the middle of the fifteenth century (1443) Jacques Cœur, the goldsmith, was erecting in Bourges the finest example of the domestic architecture of the period in France. Let us pass through the archway of the east front next the street, with its beautiful octagonal staircase turret—along the lower traceried balcony of which is inscribed the motto heading this paper—into the inner quadrangle, where we face three elegant and characteristic *tourelles d'escalier*. That on the left is hexagonal, in the centre octagonal; that on the right—in the interior angle—oblong. In this latter example the windows alternate with traceried panels on a bevelled angle, while all three towers are crowned with rich balustrades and with the characteristic steep roofs and large glittering *girouettes* which lend such point and piquancy to the whole. The side *tourelles* are simpler in treatment (in keeping with their subsidiary purpose) than that in the centre, which is boldly emphasized and highly enriched with sculptured figures and tracery. It is emphatically the stair of honor. In the staircases of the period we always find an unerring instinct in the suitable distribution of ornament. What strikes us at first on examining the plan of this hôtel is the number of the staircases. They are numerically within one or two of being equivalent to the number of apartments. This was a peculiar feature of the times. The corridor was unknown. The advancement in plan consisted in the multiplication of rooms. The desire for privacy and convenience in avoiding crossing one room for access to another equally necessitated the increase of staircases. Whenever separate communication was wanted between floors, a suite of apartments, one room immediately above and below, for escape from a room, or secret purposes, there one was put. In Chambord there are no less than thirteen. In the small Château de La Muette,⁸ and in the large Château de Madrid one gave access to each suite of two or three apartments. The form used had the advantage of occupying little space, and could be constructed in the thickness of the walls or run alongside of them; they were direct, and therefore useful, while, considering the mode of life, we cannot wonder at their multiplicity. Another text may be taken on the principles of plan which regulated the staircases of this hôtel, and indeed of all buildings great or small, for it was the same in the simple house at Chinon as in the princely château of the Duc de Nevers. It was apparently a *sine qua non* that they should not interfere with the internal disposition or convenient collocation of the several apartments. We may classify them thus:—

I. Those which projected out from the inner face of the court-yard walls, as in this hôtel; in the stone house in the Rue Notre Dame at Moulins (c. 1490); the Châteaux Meillant (1503), and Nevers, and many other examples.

II. Those which occupied an internal angle of the court-yard, as in the Château d'Ainax-le-Vieux (1506) and Gaillon (1502). In the domestic architecture of towers we sometimes find examples at the external angles, more especially when at the corner of a street; but they are almost generally placed in an angle of the court, as in a house in the Rue des Trois Pucelles Tower. Occasionally a straight stair leads direct up from the street or court.

III. Those which were partially isolated and connected in the

¹ The Institute Prize Essay, 1884, by Thomas Purves Marwick, A. R. I. B. A., published in the *Building News*. Continued from page 283, No. 442.

² "And in the said stepyll shall be a vice turning, serving till the said body, isles, and quere."—Contract for Fotheringay Church. "Vis. S. Gilles. A fashion of winding staire, that's vaulted all under the steps."—Colgrave's *French-English Dictionary*, 1650. "The construction of a circular staircase round a newel called Vis. Saint Gilles was first practised at the priory of that name, situated about four leagues from Nîmes. It has the reputation of being the most difficult operation that could be performed by a mason. All the surfaces of the voussoirs are irregular, and the arrises formed of double curves."—Cresy's "*Civil Engineering*" as already shown in this paper. "Vis Saint Gilles" is evidently a misnomer, as this form of staircase was in use both in Greece and Rome.

³ Brandon.

⁴ Illustrated in "*Peterborough Cathedral*" and *Building News*, February 24, 1882.

⁵ "*Stones of Venice*" Vol. I, p. 202.

⁶ Destroyed in the early part of the seventeenth century by Louis XIII (1610-43).

⁷ *History and Antiquities of the City of Paris*, Vol. II., p. 23.

⁸ "*Le plus excellentes Bastiments de France*," Par Androuet du Cerceau, architecte.

slightest manner with the main building, as in the Château Gaillon and the old Louvre.

IV. Those which were placed in an enclosure in the building immediately behind one of the walls of the court-yard, as in the Château Châteaudun.¹

All examples being surrounded by solid walls, this grouping shows us that though an integral part of the structure, they were still distinct and capable of easy separation. The *tourelle*, when projecting from the wall or in a corner, was generally bevelled at the angles to interrupt as little as possible the light to the conterminous apartments on each side, until rising above the eaves, where such necessity no longer existed, they were boldly corbelled out and crowned with steep turret roofs, as at the Châteaux Gien (1490) and Haute-Goulaine (1500), or at the Hôtel de Ville de Saumur. They were thus, by virtue of their prominence—apart from their beauty—the principal features in all designs. Nothing could well lend more charm to a building than these staircases, with their turreted adjuncts clinging to their sides, affording access to the little upper room, the terrace, or the open-timber gallery which often crowned them. Whatever outline the external walls assumed the stair internally was almost invariably circular on plan, on the usual principle of a central cylinder with radiating steps, and proportioned in size to the purpose and scale of the erection. We have described the method of supporting the steps of early turnpikes in England by raking vaulting, a system which was gradually abandoned in the thirteenth century. In France it was similar. The external details followed the architecture of the prevalent style. No attempt was made to assimilate the windows with those of the adjoining façades, for truth was pre-eminent. The steps did not, therefore, require to cross them as we see so often in the architecture of to-day. They were placed where wanted, and of the size necessary for the thorough lighting of every part, often divided by mullions and transoms, and stepped with the angle of inclination of the stair. We find them grouped in a masterly manner, with a rich succession of interpenetrating mouldings separated by hollows, running sometimes from bottom to top, and having the intermediate spaces filled in with rich sculptured figures, as at Nevers and Bourges, with ornaments, traceried panels, or heraldic devices. The staircase, in fact, was made a distinct feature, irrespective of any other part of the building, and with an individual expression all its own. Access was usually gained to them by an outside door which varied in detail. The actual opening was small, square-headed, with the corners rounded, and had buttresses with crocketed pinnacles at the sides, from which sprung a flat or equilateral arched tympanum head. This was often filled with carved work, surmounted by a cable moulding having one or two flat, widely-spaced crockets at each side, and terminating in a large finial, as in the Château de Boisy (1450) and the Hôtel de Jacques Cœur. The dormers which adorned the roof had usually rich angular pediments, supported by buttresses at each side, and terminating in pinnacles highly crocketed, as at the Château de Ganelon (1480-95). We approach closer, however, to the period of change in the external architectural dress of the staircase. The Renaissance in Italy fostered and developed by the pioneer Brunelleschi (1377-1444), and carried on by a noble band of artists, began to influence the architecture of France. It had been simmering for thirty or forty years, but with the advent of Louis XII (1498-1515) became more and more marked. The country was favorably situated geographically to receive an early impress, while it was brought still closer into contact when Charles VIII led the first of a series of wars into Italy towards the close of the fifteenth century (1491-96). Of the two staircases in the angles of the *corps de logis* at Blois,² that in the north corner of the east front, erected by Louis XII in the first years of the sixteenth century, shows this influence in the twisted shafts and sculptured work. Externally enclosed in a picturesque square tower, with high pitched roof and dormer, internally it is octagonal on plan. The centre newel is of large diameter, richly shafted, encircled by a boldly-moulded handrail, and crowned at the top by a coronet, from which radiate the ribs of the richly-groined roof. In the Château Châteaudun we have a handrail similarly disposed. Where used at all these were generally thus moulded and constructed in the large stones of which the newel was built up; but in smaller examples the handrail is on the outer wall, partly inclosed in a hollow. These newels formed a favorite point for the display of elaborate ornamentation, and in that of Châteaudun—which is also shafted—it is richly decorated between with carved arabesques. Open newels were seldom met with. We have already noticed in the interior of the mediæval staircases of England a similar method of roofing to that in the staircase of Louis XII. The artists often allowed themselves a certain license in the design of these roofs, which formed but one of many instances we have of the care, taste and skill which the architects of the Middle Ages displayed in the construction of all parts of their staircases. In the Hôtel Chambellan, Dijon, the newel was carried up in this way as a vaulting shaft, the top portion representing a man with flowers on his head, which branched out and formed the roof. In the Logis-Barrault, Angers (1493), Châteaudun, and many other examples, this beautiful feature is to be found. The influence of Italian taste may also be seen in the elaborate *tourelle d'escalier* of the Château Meillant, with its twisted pillars and rich incrustations of panelled and carved work,

and in those of the Châteaux Haute Goulaine (1500) and St. Ouen, erected early in the sixteenth century. Its complete mastery we will consider further on.

ARCHITECTURE AT THE ROYAL ACADEMY.³—II.

LONDON, May, 1884.



English homes should be, the exteriors being so much more satisfactory, we have a greater desire to know what they are like inside. We have already remarked on the finest house in the Exhibition, "Dawpool" by Mr. Norman Shaw, so we only refer to it again to note that its author must have thought some such desire as we have expressed would be felt, as he has given us several of its most interesting features, both internally and externally, besides a ground-plan, which is of great assistance in enabling any one to comprehend the design as a whole. In several other cases, where exterior views and plans are given, the desire for information about the interiors is left unsatisfied.

With these few remarks we proceed to notice the only contribution of Mr. Edes: "A Block of Buildings at the Corner of Brook Street." It is in that familiar phase of Renaissance which meets us so often in our streets now, and may be recognized as always presenting the gables of the roofs to the street, instead of the sides as in former days. Vertical lines prevail almost more than horizontal, so that it will be imagined the Classic element in such designs is very freely treated indeed. This one is nothing out of the ordinary of its class, but it is effective and very far from commonplace,—a welcome relief from our monotonous street architecture.

The works of Mr. Ernest George are always interesting, but this year we hardly think him up to his usual mark; for instance, "Collingham Gardens," which has that strong Dutch feeling he has infused into his work lately, is restless and spotty, the effect a good deal frittered away. The style of the drawing, perhaps, has something to answer for in this respect, but still one can see that apart from this the architecture is not nearly so exalted as "The Gables." His other work, "The Knoll, Barton," is quite another matter. Here we have a quiet, restful country house, in its author's best manner, quaint, and yet not in the least overstrained, a place to live in and enjoy.

Nos. 1248 and 1297 show us the "Great Hall and the South Front of Ingestre Hall," in course of restoration by Mr. John Birch. As usual in cases of this kind, it is difficult to say what is part of the old work restored, and what new, especially as in these drawings, and more particularly in the "Great Hall," the spirit of the old work has been happily caught. The place was burned down a few years ago, and, whatever may have been left of it, the work shown here does Mr. Birch great credit. The characteristic gables and circular bay-windows of the south front are retained and faithfully restored, so that practically this old Tudor house is still preserved to us.

We are afraid the "New Façade to Easton Lodge," by Mr. Young, suffers somewhat by comparison with the old work of the foregoing, as it is straggling and thin in design and detail. It is often a difficult task to recast the front of an old house; at any rate the Tudor employed here is far too florid, and the parts have a disjointed effect far from pleasant and much wanting in a house of this importance.

Before leaving this part of the gallery, we must notice, for the beauty of its drawing, "An Old Manor House," by Mr. J. Langham. This is one of the most beautiful examples of Mr. Langham's draughtsmanship, worthy of the most careful study. The softness of effect and the feeling of atmosphere in it are wonderful; every touch and line give just the amount of detail that is required, and no more. Why are we not told where such a delightful house is?

A great contrast to this in the way of drawing is "A View of Pickhurst in Surrey," by Mr. J. M. Brydon, where what appears to be a rather fine country-house of considerable size is somewhat marred by want of breadth in the treatment of the view. A sketch-plan shows the general arrangements of the house, in which the hall is a prominent feature. Externally we have one of those partially half-timbered and red-brick houses common to that part of the country, in which bay-windows and gables play a conspicuous part, and the result is a most picturesque manor-house, with good grouping and the

¹ Photo-lithographs of this example have been given in the *American Architect* for Sept. 17, and Oct. 29, 1881, and for Aug. 26, 1882.

² For illustration of this Château see *Building News*, June 25, 1875.

³ Continued from page 281, No. 442.

details carefully worked out. The central gable, over the two bay-windows combined, should be a striking feature, and the tall chimney-shafts effective. An interior view of the hall would have been of great advantage to give some idea of the character of the work internally.

A charming chimney-corner is shown in No. 1273: "The Dining-Room Fireplace at Swarland Hall," by Mr. May—a wide, capacious, inviting hearth, to make the comfort of any home. The stables at the same house are shown in No. 1285, a picturesque group. Mr. May sends also "Two Houses at Hampstead," very cleverly designed in Queen Anne, but they look more like one house than two. The two oriels corbelled out at the angles are clever features, cleverly introduced.

We are glad to see such a house in the colonies as that shown in "A Country-House near Sydney," by Mr. M. B. Adams. It will help to remind its owner of the old country, in his far-off home. Mr. Adams also sends another good house in "Queensmead Cottage, Windsor."

A charming club-house for a country town is "Design for the Bedford County Club," by Mr. Aston Webb. We hope the committee have chosen a better design than this, but very much doubt it, as nothing could be more appropriate than the quiet understory with the three gables and the balcony above, from which to look out over the road and the river in front.

"Somerville, Kent," by Mr. J. H. Watson, is a large, English-looking mansion, built in stone, with red tile roofs and tall red chimney-shafts. It seems to comprise two courts, that on the north having been recently built. The new part is in perfect harmony with the old, and the whole pile is ably designed. It is shown in a water-color drawing of considerable merit, and has that quiet, restful tone we have more than once noticed in many of the works this year.

Near this is the "Salon at Paddockhurst, Sussex," by Mr. Arthur Cawston, a fussy, pretentious interior, not the least like a Sussex manor-house, any more than a *salon* can be like an English hall; there is no such apartment in an English country-house.

Several works are sent by Mr. George Sherrin: "Residence at Ingatestone, Sussex;" "The Gate-House" at the same place; "Workmen's Cottages and Dining-Hall, Halstead, Essex;" "Writtle Wick, near Chelmsford,"—all in that picturesque half-timbered style Mr. Sherrin knows so well how to use,—the greatest effect with the least means: all the features carefully detailed and thoughtfully worked out.

It is a great pleasure to come across a charming design like that at "Fremington House, Devon," by Mr. Ernest Newton, though it looks almost like additions to an old house. The entrance is most artistically managed; it is under an arch, and between two square bays with a recessed gable between. One of these bays, that on the right, is in the hall, and the other on the staircase. The style is a remarkably good free treatment of Classic, the best type of Queen Anne, we should call it, of that peculiar phase of the style which is only to be found in England—details good, with quaint little bits here and there, but, all the same, quiet and effective throughout.

Another good house is "Manor Lodge, Harrow," by E. S. Prior, in free Classic again, but this time more of a Flemish character in its details, so it has not the same English look about it as Mr. Newton's, in Devon. It is of the same type as Mr. Shaw's insurance office, in St. James Street, with stepped gables and mullioned windows. It has a very picturesque site, on which it is cleverly arranged.

We had almost forgotten a clever little "House at Sheen Common," by Mr. J. E. Collett, which it would be a pity to overlook, it is so artistically designed, as most of his work usually is: style, half-timber and brick.

There are a number of public or semi-public works yet to notice, chief among them being "The New Medical School, Edinburgh University," by Mr. R. R. Anderson, a large, important work in a sort of Florentine Classic, freely treated. The design is chiefly remarkable for the great clock-tower, quite Italian in feeling, which dominates the whole structure, and for the cleverly-designed circular end to one of the lecture-theatres, designed apparently to suit the exigencies of the situation. This feature is made the most of, with the happiest results, giving great character to this portion of the building. Mr. Anderson sends also a view of "The Central-Station Hotel, Glasgow," a huge block with a good clock-tower. The style is rather nondescript, as these big hotels are apt to be, but it is a freely treated version of Renaissance, though not very interesting except to the shareholders.

Design for the "Municipal Buildings, Nottingham," by Mr. F. H. Oldham, is that bracketed by another by Mr. Waterhouse for first place in the recent competition. It is a great Queen Anne pile of the most fashionable type, with a very high clock-tower. It seems to us, notwithstanding some undeniably clever features, that the general mass has a disjointed look, as though it were a cluster of separate buildings, rather than one great public work, and the tower, from its great height, rather cuts the composition in two. It is a clever design, nevertheless, and is shown in a splendid drawing in pen-and-ink by Mr. Langham. We are afraid the style is one we shall presently grow tired of; it is too picturesque and not monumental enough for a public building. When Queen Anne comes to be used for such a work, it must of necessity, we think, become more Classic in the strict sense of the word.

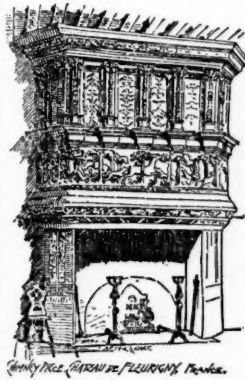
The design now being carried out for the "New Roof over the Area of the Royal Exchange," London, by Mr. Charles Barry, is also shown.

It is in glass and iron, not very much in harmony, as it seems to us, with Sir William Tite's great work. Perhaps this was inevitable under the circumstances, as the court-yard was never designed to be roofed over, and the nature of the materials employed seems unsuited to the Italian architecture they surmount; indeed the new roof seems if anything too architectural. Since the great desideratum was plenty of light, a simpler construction would have been more appropriate and not entered into competition so much with the stonework below. The effect can be much better seen when the work is completed, when perhaps it may be found we are wrong. Be that as it may, however, there can be no doubt that some of the detail shown in this drawing is of a very commonplace character.

Some of the recent designs by the architectural students of the Royal Academy are also on the walls, viz.: "Design for an Academy of Arts," by M. E. G. Hardy; ditto, by Mr. Leonard Stokes; "An Academy of Music," by Mr. R. A. Briggs; also the design for a "Staircase of a Royal Palace," sent to the Institute by Mr. E. W. Poley. They are all more or less of the Academic type of Classic. The last is a very cleverly drawn interior view of a very well conceived design; but Mr. Stokes's is a poor affair, hardly worthy a place among the rest here. They are only noteworthy from the fact that the Gothic age of Academic design, recently in full force, seems now to have passed away, and Classic art, more or less free, is once more in the ascendant. It is interesting to note the changes of actual work thus reflected in the schools, but what next?

No. 1341 is a most interesting drawing of "The Temple of Diana at Ephesus," from the remains discovered by Mr. J. T. Wood, as restored by Mr. James Fergusson, the well-known historian of architecture. This work reminds one of the days of the Dilettanti Society and of the elder Cockerel, and embodies all Mr. Fergusson's ideas on the subject of the great Temple of the Ephesians. A plan is given below the view, showing where remains of columns, etc., were found *in situ*, and what has been developed from them by the author. It is a scholarly disquisition on old Greek art, showing great knowledge of the subject, knowledge once considered the foundation of all architecture as a fine art, but now, alas, aspired to by few. Whether for good or evil, we have left the study of such work as this far behind. There is scarcely one among our leading architects—artists though many of them be—who is able to controvert or otherwise demonstrate the truth or error of the views put forward in this remarkable work; they all belong to another school, and the school is not that of Athens. Lately when a paper on a similar subject was read at one of our "learned societies," the discussion fell flat for the simple reason that no one present knew enough about it to keep it going. The "remarks" were confined to empty platitudes on the lecturer and paraphrases of portions of his paper.

THE CONDUCT OF COMPETITIONS.



THE *Builder* has recently published a list of the 1385 British architects who have given their adherence to the compact suggested by the Council of the Royal Institute of British Architects, which binds the signers to abstain from taking part in competitions in which an architect is not employed as expert adviser or "assessor."

It also publishes the circular-letter which the Council is to employ in its attempt to bring about a change of heart in those who issue improper invitations to compete. This is to be used very much as we suggested in our reply to Mr. Oakey, in our issue for May 17, a similar-circular letter might be employed by the still-nebulous American Architectural Alliance.

As to this child of the future we cannot say much that is definite, as by the condition of our "open-letter" of April 5, all replies solicited are for our *private* information. But we can say that the movement is quietly growing in favor with the profession, and we very much regret that we cannot print some of the endorsements the scheme has received.

A short time ago we addressed a circular-letter to the several Chapters of the American Institute of Architects, drawing their attention to the matter, which we closed with these words: "We have absolutely no personal feeling in the premises, and are quite willing either to pursue the matter ourselves to its legitimate conclusion, to drop it entirely, or to turn it over to the Trustees of the Institute, just as the members of the profession seem to think it will be most advisable for us to do." And we may say further that the proposed movement can be considered in no way original with us. We are simply trying to bring into practical working a scheme very similar to that which has been for years the aspiration of every architect who has at heart the real progress of the art and the profession.

Several Chapters have taken action on our letter, which we can only lay before our readers anonymously, but as it is even thus evidence of the interest awakened, we print them below. It will be seen that it is generally felt that the matter should be now taken up by the Trustees of the American Institute of Architects, an opinion in

which we share. Still we trust that architects who have not yet expressed their opinion will still continue to address themselves to us in order that the mass of correspondence that we transmit to the Trustees may be as great as possible.

[EXTRACT FROM SECRETARY'S MINUTES.]

"The Secretary read a letter, dated May 24, 1884, to himself from the editors of the *American Architect and Building News* referring to an 'open-letter' on the subject of competition published in that serial for April 5, 1884. The Secretary also read the said open-letter with its context. A general discussion followed on the points set forth—the objects, among other kindred ones, of frequent informal debate among members of the Chapter for many years past. The desirableness and importance of stamping all or some of its formulated or implied suggestions with suitable and available authority was confirmed, while the feasibility,—even with the increased and increasing strength of the Institute, and of the principal literary organ of the profession in this country—of enforcing all or any of them was by some considered doubtful. On motion of the Secretary, seconded by Mr. —, the matter was referred to the Board of Trustees, A. I. A."

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Gentlemen,—Your circular-letter in regard to an alliance of architects for the better regulation of competitions was discussed at our last Chapter meeting. It was unanimous that such an alliance would be an excellent thing for the profession, and each one said that he would be willing to enter into some such an alliance. The majority thought that perhaps the best thing to do in the premises would be for the next Convention to consider the matter. The Chapter desires to express its increased obligation to the editors of the *American Architect* for bringing this very important subject to the attention of the profession.

Yours respectfully, —, Secretary.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Gentlemen,—In reply to yours of the 24th inst., I beg to say that at the last meeting the subject-matter of your "open-letter," published on April 5th, was briefly discussed. The following is a copy of the minutes:—

"The Secretary then called the attention of the meeting to an open-letter published by the editors of the *American Architect* in the issue of April 5, 1884, asking members of the profession to agree to an alliance of the architects of the United States and Canada for their mutual protection in the matter of competitions for architectural designs. By the editorial columns of the *American Architect* for April 26th, it appears that few architects have responded to the call, and he suggested that all members of this association should lend their aid and countenance to the first move made in this direction, and one that is being made all over the English-speaking world. An animated discussion followed, and the matter was finally adjourned to a later meeting for action."

I am now seeking the individual feeling of the members, and would personally be glad to join the alliance if the majority of the profession located here would join also, and I think that most of the members are animated by the same feeling. I am, gentlemen,

Yours very truly, —, Secretary.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Gentlemen,—At a meeting of our Chapter held the 7th ult., I presented your letter of the 24th ult., and after extended discussions, it was voted that the Secretary be and hereby is directed to write to you, and suggest that you request the Board of Trustees of the American Institute of Architects to assign the subject of competitions, having especial reference to the circular-letter of the *American Architect* on that subject, for consideration at the next annual meeting.

Thanking you for the kindly interest taken in the matter, I remain, gentlemen,

Yours sincerely, —, Secretary.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Gentlemen,—Your letter of May 24th to the "Secretary of the Chapter of the A. I. A.," was duly received, and read at the last meeting.

Previous to its reception a circular on competitions, issued by this association, had been sent to you as a reply to your open-letter of April 5th.

No new action was taken on the matter. I might add that with the majority of interested architects here the circular sets forth our ideas of the radical course necessary, while the alliance proposed, we think, is not going far enough or in just the right direction. We know there are too many architects (?) among us who would not go into it at all, or else would not expect to keep their promises, to make it possible just now to form the alliance. We want to get united here first, though it be on a low platform. If we attempt much elevation to begin with, the whole plan will be defeated.

Those of us who are disposed to work, and who look beyond present gain in dollars and cents are seeking to do some missionary work among the profession and public.

I might add that I know of one or two besides my own firm that let these so-called competitions severely alone, and will continue to do so regardless of any alliance until they are conducted on a just basis.

Respectfully, —, Secretary.

THE ILLUSTRATIONS.

UNION CLUB-HOUSE INTERIORS, CHICAGO, ILL. MESSRS. COBB & FROST, ARCHITECTS, CHICAGO, ILL. INTERIOR DECORATION BY MR. FRANK HILL SMITH, BOSTON.

THIS fine structure is built entirely of red sandstone. The general mass and proportions are good, and the simplicity of the whole is both pleasing and dignified. The interior plan is simple, and well adapted to the purpose for which it was designed. At the

right of the entrance is the office, and corresponding to it on the left is the reception-room. These two rooms and the principal entrance form one side of the main hall. Directly opposite the door is a mantel running to the ceiling. The main staircase leading to the second and third stories is on the right, and facing it on the left is the entrance to two large parlors. The café is entered in the angle at the left of the mantel, while on the right, and screened by the staircase, is the entrance to the billiard-room. The hall, billiard and reception rooms and café are finished in quartered oak; the parlors in mahogany, and the reading-room in cherry, stained dark. The second story is used for the director's, card and supper rooms. The reception-room, on account of its peculiar shape and size, is treated in a somewhat fantastic manner in rich colors. The walls and ceilings are painted in thick color, combed and metalized in Japanese style. The walls and ceilings of the parlors are all treated in a scheme of blue and yellow. A thick texture is employed on both walls and ceilings upon which is a diaper of yellow over blue. The entire ceiling of the café is metalized, and a tracery of foliage in outline gives an impression of silver damascened, the effect of which is rich yet simple. The billiard-room is treated in soft tones of gray yellows, the purpose of the room being kept in view, and the desirability of retaining all the light possible, only those colors being employed which would add to and not destroy light. The reading-room, both walls and ceilings, are rich and low in tone, this room being the most quiet of all. The rooms are all different in tone and color, harmony being preserved throughout, and yet showing a varied scheme in the whole. No paper is used in the club-house, the effect of much smoking being most deleterious to papered walls, as they absorb all the obnoxious elements of tobacco, which in time it is almost impossible to eradicate.

THE NEVINS MEMORIAL HALL, METHUEN, MASS. MR. S. J. F. THAYER, ARCHITECT, BOSTON, MASS.

It is known that Mr. David Nevins in his lifetime expressed the wish to erect on this spot a public hall for the use and benefit of his fellow-citizens, and his family in thus carrying out his cherished wish, have done an honor to both themselves and him. The building stands opposite the old Nevins homestead, and is in external appearance massive and imposing. In plan, it is rectangular, the northern portion (the library wing), projecting somewhat. The extreme dimensions are 60½ x 117½ feet. The basement is of good height, and contains the steam-heating apparatus, and the quarters of the janitor. The arrangement of the other floors is indicated by the plans.

The audience-hall, on the second floor, is 45½ x 52½ feet, or 84½ feet in extreme length from the rear of the stage to the rear of the gallery, and will seat 352 persons, and the gallery 155, allowing ample space for aisles, etc. The stage is fitted with appliances for dramatic representations. With the exception of the hard-pine trusses which carry the roof, the whole interior is finished with quartered oak, and the plaster surfaces are decorated mainly in oil. The windows of the audience-hall and library are in part glazed with cathedral and stained glass, which, together with the decorations are from special designs. The arrangement of the apartments is simple and orderly. The granite foundations are carried down to the ledge which underlies the entire building. The superstructure is of brick, with Long Meadow sandstone finish; the roof is of blue slate, crowned at the ridges with terra-cotta cresting and gables, while in the centre is a spirelet of beaten copper and lead. The stone-work is here and there enriched with bold and effective carving. The great arches of the *porte cochère*, *loggia* and the principal windows give a large *motif* to the whole composition, while the smaller openings on the staircase, and in odd places for special light, add interest.

Following is a list of those engaged in its construction: Peabody & Russell, Lawrence, masons; A. A. Currier, Lawrence, carpenter; Crowley & Coughlan, Boston, freestone; Evans & Tombs, Boston, carving; J. Farquhar's Sons, Boston, roofing; E. Van Norden & Co., Boston, skylights, gutters, etc.; Boston Terra-Cotta Company, cresting; Henry Hussey, Boston, plumbing; Lewis F. Perry, Boston, plain and decorative painting; Continental Stained-Glass Works, Boston, stained-glass; Bliss & Perkins, Boston, gas-fixtures; Frederick Weld, Boston, scenery, etc.; Harwood Chair-Seat Company, Boston, seats; Walworth Manufacturing Company, Boston, gas-machines; W. F. Ralder & Co., Lawrence, steam-heating apparatus; E. Howard Watch & Clock Company, clocks.

THE CLAFLIN BUILDING, BOSTON, MASS. MR. W. G. PRESTON, ARCHITECT, BOSTON, MASS.

NEW STATE ARMORY AT TROY, N. Y. BROWN & DAWSON, ARCHITECTS, TROY, N. Y.

THIS building is now being built on the corner of River and Ferry Streets, and has a frontage of 130' on Ferry Street and 150' on River Street, while a third side is bounded by an alley parallel with River Street.

It consists in the main of two portions, the one three or more stories high covering the Ferry-Street front, 50' x 130', is called the administration building, and contains the different rooms for national guard purposes, such as meeting and wardrobe rooms, storage and dressing rooms, squad drill, division-staff and band rooms. The other portion covering the remainder of the lot, 100' x 130' is a drill-room, covered with a curved roof supported on iron trusses

descends to posterity the better for the reputation of the latter half of the nineteenth-century. The poet will write pages descriptive of the appearance, the taste and the smell of dozens of rinds of cheeses; the painter gives us "Bon bocks," "Ladies of the American bars," and frequenters of low *marchands de vin*; the sculptor regales us with ballet girls modelled in wax, colored from nature, and with real hair, and dressed in real tulle and satin shoes. Such is "Naturalisme," and yet its professors are men of more than ordinary talent, who, were it not for the love of vulgar applause, would be capable of better things. But realism at its best ought to be the handmaid of idealism, and thus it was practised by the great masters. Raphael's studies from nature prove him to have been as perfect a realist, as his compositions do that he was a master of the ideal. If realism alone is wanted, a photograph produces it better than any painting can; but the true artist is he who selects, who arranges, who knows what to sacrifice, and yet who always works from Nature herself. The realists forget the grandeur and breadth of Nature in their love of detail; and so M. Alma Tadema and M. Bastien Lepage place the leaves of a wreath or of a tree so close to the heads of their personages, that they seem to grow out of them. And yet it is absurd to suppose that either of these masters can be ignorant of the laws of composition and of aerial perspective; but they wreck their splendid work upon a mania for eccentricity. Ugliness is another craze of the realists; nature to them has no beauties, grace does not exist; and yet Rembrandt knew how to make ugliness attractive, which the moderns do not. Manet's pot-house men are intensely vulgar, Rembrandt's never are, because he softens their traits; whereas the French painter exaggerates and makes the most of a squint, or a wart, or a beery complexion, and revels in it.

To mention a tithe of the pictures in the *Salon* is impossible, and it must not be thought that omission means contempt or blame; there is so much that is admirable that it is impossible to note the works which are remarkable merely for their execution.

M. Adau's "Abandonnée" has much sentiment in it, and is of a pleasant color; but the idea seems to have been suggested too plainly by M. Maignan's charming "Reine exilée" of two years ago. M. Barrias' was a happy thought—"L'aumône à Venise,"—two gondolas gliding past each other, the one filled with beggars, the other occupied by some well-to-do tourists; it affords contrasts of color and of effect. In "La Salle Graffard," M. Béraud has given us a meeting of communists as a contrast to his many elegantly dressed men and women. It is, perhaps, a little caricatured, but it is difficult to know which is the more clever, the speaker roaring out his anti-social views, the crowd yelling applause, or the five reporters at the table—the attitudes and dress of the latter are true to the life—so too, the woman on the right, and the general *mélée* of smoke, light, and dingy dirt. M. Béraud proves by this picture that he observes nature, for these *déclassés* are as perfect studies as his opera *habitués* of former years. It is a pity M. Lepage has not sent one of his exquisite little portraits; he is inimitable in that line, a modern Clouet, but his subject-pictures leave much to be desired. Mr. Boggs is better in his Dutch scene than on the Thames, but he is always good. M. J. Breton is quite himself again in his "Communiantes," a picture full of harmony and poetry. M. Carolus-Duran is better this year than last, but not equal to his former self. M. Collin's "Eté" is an example of a well-composed picture treated decoratively, but rather chalky in color. Of M. Puvion de Chavannes one can only say what has been said over and over again, that the eccentricity overthrows the merit. To his admirers his pictures are all that can be desired; to others they appear to be ill-drawn, colorless, full of grotesqueness, chalky, vapory, unreal, hard and dry. His people have no muscles. Feeling, there no doubt is, but why should other qualities which make up even a good decorative picture be ignored? M. Dagnan-Bouveret is not so happy in his "Hamlet" as he was in "L'Accident," and the "Vaccination" now at the Royal Academy. M. Dantan's "Ateliers de Moulage," and "de Tourneur," are both painted with that decision and truth of coloring usual with the artist; and the same may be said of M. Détaillé's "Soir de Bonville." So too, M. Delaunay's portraits are those of one of the finest portraitists of the age. M. Duez's "St. François d'Assisi; le miracle des roses," is firmly painted and very effective. The Saint is nude down to the waist, and the roses are showered down upon him much to the astonishment of the attendant monks. Snow is on the ground, and helps to set off the dark frocks of the friars. The rest of the community are seen running out of the convent to witness the miracle. The picture is conceived in the same unconventional spirit as the "St. Cuthbert" of 1880 (now in the Luxembourg), and is better in color, though somewhat crude. If there is any fault in M. Edel-felt's "En mer," it is that the accessories are too important; but it is painted with great care, and smells of the sea. The expressions of the faces of the old sailor and the girl are admirable. M. A. Flameng's "Bateau de pêche, à la Rochelle" is a charming study of misty sky and calm sea. M. L. Flameng's "Massacre de Mache-coul" is considered by some the "clou" of the exhibition. Certainly if a horrible subject can effect this end, it ought to be; but although bodies, dying in agony and dead, are heaped together in an ungainly mass, and blood is freely scattered about, yet it does not impress one as it ought, for could anything be more ghastly than a party of gentlemen, and elegantly dressed ladies coming out of their *château* to look at such horrors as a little after-dinner diversion? Such episodes of civil war had better be forgotten. M. Gervex's portrait of Alfred Stevens strikes one as being rather vulgar, probably from the sitter

wearing a chimney-pot hat. M. Hagborg's "Une Alerte" is fine and true to nature. The action of the men pushing off the boat is excellent. M. Henner's "Christ," and "Nympe qui pleure" are repetitions of what we have often seen before, but will gladly see again, so splendid is the coloring, so masterly the modelling. M. J. P. Laurens, has a fine study in reds in his "Vengeance d'Urbain VI," which seems to have been the motive for treating this most revolting subject. M. Lefebvre's "L'Aurore" is a charming example of the artist in his best manner. It is an upright nude figure rising from and surrounded by mists in the style of the "La Rosée" of some years back, which was in a reclining attitude. The treatment and surroundings of mist, water-lilies and rushes are the same, but the color is better, and the drawing more decided, and it is far more satisfactory than the "Psyché" now in London. M. de Nittis has a scene from mundane life, and a "Gardeuse d'Oies." Of Mr. Sargent's portrait of Mme . . . (Mme Gautreau), one can say nothing but praise; it is even superior to the one at the Royal Academy, London; vigorous, well-drawn, and full of life. Mr. Sargent is in a fair way to eclipse his master, M. Carolus-Duran, if the world does not spoil him and make him careless.

PENGUIN.

OLD CHRIST CHURCH, ALEXANDRIA, VA.



In January, James Parsons agrees to erect the latter according to the following quaint specification, for £600. The architect was "James Wren, gentleman." Who can say he was not a relative of the great Sir Christopher?

January 1, 1767.

"The Church at the falls and Alexandria to be 28 feet from the foundation; that is, three bricks and a half to the sleepers, three bricks to the water-table, and two and a half from thence. The Quoins and Arches to be of Rubbed Brick, the Pediments to the doors rubbed work in the Tuscan Order. The outside of the wall to be done with place Bricks, the Mortar to be two-thirds lime, and one sand; the Inside half lime, half sand. Isles to be laid with tile or Flags; the Lower windows to contain eighteen lights, each of nine by eleven. The upper windows twelve lights, beside the Compass head; the sashes of the lower Windows to hang with weights and pulleys, and to be clear of sap; to have a Medillion Cornist under the eaves. The Roof to have three pair of principle Rafters, or as the Workmen call it, a princepal Roof, to be framed in the best manner, and to be covered with inch pine or poplar plank, laid close to shingle on, the shingles to be of the best Juniper Cypress, three-quarters of an inch thick, eighteen inches long, and to show six inches; the floors to be laid with inch and a quarter pine plank, and to be raised four inches above the Isles. The pews to be three feet six inches high, besides the coping, With doors to all; to be neatly Wainscuted with quarter round on both sides, and Raised panel on one, and to be neatly caped with some handsome Moulding. The seats to be twelve or thirteen inches broad, the out doors to be folding, and in Width—feet, hung with proper hinges, locks and bars. To be Raised panel on both sides; locust sills to the frames, and Architraves on the outside. The Alter piece, pulpit and canopy to be completed in the Ionick Order. The Walls and ceiling to be well plastered with three coats, with a Cove Cornish. The whole to be neatly painted and finished in the best manner. The Isles to be six feet."

In 1772, Parsons having failed to finish the work, Colonel John Carlisle agreed to finish it for the additional sum of £220, and on February 27, 1773, the building was accepted by the vestry, and pronounced completed "in a workmanlike manner. The pews were then sold, Colonel Washington paying £36 10s. for pew No. 5, the highest price paid. In 1787 galleries were erected; in 1810 the organ was purchased; in 1812 two chimneys were built, the church not having been warmed previously. By 1821 all the old square pews were altered, though Washington's pew was restored to its original shape in 1837, and so remains. In 1818 the steeple was erected; in 1853 the church was lighted with gas. Washington was a constant attendant at these services, driving from Mount Vernon, seven miles distant. General R. E. Lee was also a constant attendant from his boyhood. He was confirmed here in the summer of 1853, and a silver plate marks the pew which he formerly occupied. In 1870 marble tablets were inserted in the eastern wall. They are alike, and one bears the simple inscription, "In memory of George Washington;" the other, "In memory of Robert Edward Lee." The old building stands in a large enclosure, and is very quaint and picturesque, with its time-worn walls, covered with clustering ivy, and the grave-stones of its past worshippers all around it.

J. A. W.

THE SEWAGE IN THE THAMES.¹

THE history goes back as far as to legislation in the reign of Henry III, at which time such sewers as existed were intended only to cover over or supply the place of natural streams and ditches, and so to carry away the rainfall from the fields, roads and roofs of houses. From the time of Henry III to Henry VIII, all enactments affecting drainage were of a local nature, but in the twenty-third year of the reign of Henry VIII (1531 A. D.), the general "Bill of Sewers" was passed, which appears to have laid the foundation of modern legislation for all works of this kind. Many other Acts followed to amend and explain this celebrated Act, most of them applicable

to the country in general. The rapid growth of London rendered necessary more frequent special enactments for making, enlarging, amending and cleansing its "vaults, drains and sewers." The formation of many new "districts," successively built upon, each with its own local governing body, led to a subdivision of the management of underground drainage; but throughout all the changes sewers were regarded as the legitimate channels for surface water only. All offensive house refuse was collected into cesspools, and carted into the country as manure; and at the commencement of the present century it was penal to discharge what is now called "sewage," or other offensive matter into the sewers.

Such was the method of sewage and drainage till the invention of the water-closet, which completely revolutionized systems that had been followed for centuries. It was first introduced about 1810, and after 1830 its adoption rapidly became general. The cesspools were used as the receptacles of water-closet discharges, and the addition caused to their contents in this way rendered it necessary to introduce overflow drains from them into the street sewers, the effect of which was, of course, to pollute the sewers.

Here was the commencement of those sewer and Thames pollution troubles which have grown to such magnitude.

As the water-supply of London was then largely drawn from the river in the neighborhood of sewer outlets it was early recognized that the purity of this supply was endangered. In 1831, John Martin, the artist, designed a plan to embank both sides of the Thames, and to construct an intercepting sewer in each embankment for the purpose of collecting the sewage and conveying it to points in the river below the most populous parts of London.² The scheme, however, was in advance of the times, though its important features have been followed in the works which have been ultimately adopted. In 1845, the scheme was again suggested by Mr. Thomas Wicksteed, who proposed Barking Creek and Greenwich-marshes as the points of outlet, but it met with no better success than before.

At this time the drainage of the metropolis was under no less than eight local "Commissions of Sewers," each having its own regulations as to size of drains, shape, angle of inclination, etc. The evils of the consequent confusion were so manifest that a consolidated Commission of Sewers was constituted by an Act of Parliament in 1848, and the same Act provided that every house should have a proper water-closet, and be drained into the main sewers. This completely reversed the legislation on this point as it existed at the beginning of the century. The Commission zealously began the improvement of house-drainage, the abolition of cesspools, and the introduction of pipe-sewer communications between the houses and the main drains. In 1849, however, they were superseded by a fresh commission, and this new body held that sewage should be kept out of the Thames altogether. They advertised for competitive plans, received one hundred and sixteen, discussed them, came to no conclusion, and resigned. A third Commission examined the plans, decided none would do, and appointed Mr. Frank Foster to prepare a scheme. He adopted the fundamental principle of intercepting sewers, planning the outlets at Galleons Reach and at Woolwich-marshes. The Commission, however, decided nothing, nor did a fourth, nor a fifth, nor a sixth, appointed in 1854. Meanwhile the state of the Thames was becoming alarming, and in 1855 the Government, by an Act which received Royal assent on August 16th, created a new representative body, the Metropolitan Board of Works. Their most important office was to take charge of the main sewers of the metropolis, and in particular to construct works of a comprehensive system of main drainage. A very important section of the Act (18 and 19 Vic., cap 120) became a source of much controversy, and for three years proved a block to work. Section 135 provided, "and such Board shall make such sewers and works as they may think necessary for preventing all or any part of the sewage within the metropolis from flowing or passing into the River Thames, in or near the metropolis, . . . and the said Board shall cause the sewers vested in them to be constructed, covered, and kept so as not to be a nuisance or injurious to health."

One of the first steps taken by the Board was to instruct its chief engineer Mr. (now Sir Joseph) Bazalgette, to report on the works

necessary. He took the old proposals of Mr. Foster, which were in essential points similar to those of Martin, as his basis, and prepared a plan which gave the north outfall at Barking, and the south at Plumstead. The plan was laid in accordance with the requirements of the Act, before the First Commissioner. This was in June, 1856. The First Commissioner applied to the Admiralty for information as to the extent of tidal action in the Thames, and Captain Bursstal, R. N., was appointed by them to report. On receipt of his report the First Commissioner wrote to the Board that the plan they had sent "actually provides that the sewage shall flow into the Thames," and that before any such scheme could be carried out, it would be necessary to ask Parliament to repeal such parts of the Act as Section 135 (quoted above), and he returned the plans.

From this point in the history the question of the outfalls holds a prominent place.

In November, 1856, the Board submitted another plan with outfalls two or three miles lower down, and also reported that they had considered a scheme for discharging below Gravesend. Other plans were prepared, and eventually the whole question was referred to three Government referees, Captain Douglas Galton, Mr. James Simpson and Mr. Thomas Blackwell. They sent in a report, which was published as a Parliamentary paper, August 3, 1857. This report went into many matters in much detail, and on the subject of the outfalls recommended for the north a place near Mucking Light-house, in Sea Reach; and for the south Higham Creek, in the Lower Hope. The Board, on receiving the report, objected, and much correspondence followed.

The Board then appointed Mr. Thomas Hawksley and Mr. G. P. Bidder to be associated with Mr. Bazalgette in drawing up a report on the whole question, and this was sent in on April 6, 1858. A correspondence between these gentlemen and the Government referees continued for several months. During these deliberations the state of the Thames was becoming worse, "and was exciting great alarm and indignation. The subject was repeatedly noticed in Parliament, and strong language was used in both Houses."

In February there had been a change of Government, and the new administration took the view that the metropolis, through its representative Board of Works, might carry out its drainage and sewage without obtaining Government sanction. "As the metropolis paid for the work they had a right to construct it in any way they pleased." After debates at every stage or progress an Amendment Bill was passed, and became law August 2, 1858.

The clause which gave the Board power to carry out sewers and works, "according to such plan as to them may seem proper," also added, "and for preventing, as far as may be practicable, the sewage of the metropolis from passing into the River Thames within the metropolis."

In commenting on this the Commissioners, in Sec. 54 of the Report say: "It certainly appears remarkable that the Legislature should have withdrawn all control over the construction of gigantic works of this kind, which were certain to have influence of a wide national character. But if the debates which occurred at the time are carefully studied it is not difficult to trace out the reasons which mainly influenced the decision." They point out (1) that the state of the river required immediate action. (2) That all contending parties were agreed that intercepting the sewage by main drains running eastward was the correct principle. (3) It was felt that this must be later commenced at once, leaving the ultimate disposal of the sewage for later decision. It was considered that the plans of the Board were not necessarily final, but might be extended and amended at a future time. (4) There was a confident expectation that the sewage would be treated by some process of deodorization before entering the Thames. (Extracts from the debates are given.)

Immediately after the passing of the Act the Board took the matter earnestly in hand, and by 1864 both the northern and southern outfalls were in use, and in 1875 they were pronounced complete.

The Thames Embankment, to limit the areas left dry at low water, was also completed about the same time.

Complaints, however, followed soon after the drainage works came into operation, and then ensued the two well known inquiries, the Barking inquiry, 1868, and the Mud Bank inquiries, 1867 to 1880.

Part 2 of the Report describes the whole system of the metropolitan main drainage. In the "Remarks" which the Commissioners append, it is mentioned that the weak points are (1) the necessity for a large provision of storm outlets, and (2) the discharge of the sewage in its natural crude state.

1. There are hundreds of miles of sewers now in the metropolis, in which the sewage does not flow at the velocity necessary to prevent the sewer matters from depositing. When sudden heavy rains occur great masses of deposited filthy material are washed out, and find their way directly into the urban reaches of the river.

As regards (2) the discharge in a crude state it is pointed out that this is not a defect inherent in the system, and at the time of the passing of the Act it was distinctly understood that the construction of the works, and the management of the sewage, were separate considerations (see above). How far remedies can be applied will be the subject of future inquiry. Meanwhile facts have been ascertained with regard to the distribution of sewage by tidal influence.

The discharged sewage undergoes a daily oscillating movement due to the tide, and also a gradual displacement of these oscillations down the river, depending on the quantity of fresh water entering the river.

¹The Royal Commission on the discharge of sewage into the Thames, recently issued their first report, of which this, taken from the *Journal of the Society of Arts*, is a summary.

²A report on this was published April 23, 1836.

The oscillations have been studied by observing the movement of floats put in at various periods of the tide. This had been done in several previous inquiries, and a further large series of experiments were made for the purposes of this Commission. The floats were put into the river opposite the Barking (northern) outfall, at various periods of the tide. Each was watched, and its position and motion recorded during thirty, and in some cases, forty-five days. The chief results were:—

1. The extent of tidal oscillation varied considerably, some parts of the river moving much more rapidly than others.
2. The maximum range of oscillation recorded was, at spring tides, eighteen miles; at neap, a little under seven.
3. A float, started at high water, ascended up to Greenwich, a distance of eight miles; another started three hours after high water, ascended to between Putney and Hammersmith, twenty miles; a third started at low water, ascended twenty-two miles.

These were the points reached with subsequent flowing tides, and the Commissioners consider that these experiments add important and novel information as to the distance which tidal currents may travel.

The practical inference drawn is that where the floats went sewage discharged at the same times of the tide may also go; but it is mentioned (Section 83) that Sir J. Bazalgette "does not consider that the motion of a float is analogous to what would take place with the particles of sewage."

The rate of displacement, *i. e.*, progress downwards of the sewage, is a different question, and various calculations give it at a quarter, a third, and a half mile a day. A rough estimate is that sewage would take one hundred and fifty days to travel from the outfalls to the sea, if its progress depended on the influx of upland water.

It is, however, necessary to take into consideration the mixing action which has such a remarkable influence on the distribution of sewage.

Taking the amount of chlorine in water as a test, it is seen that sea-water so mingles with the river-water, that it has been traced as high as the tidal limit at Teddington. It is argued that since a mixing action is known to go on between the sea-water and the fresh there is every reason to believe that the same kind of action will go on between each of these and the sewage.

The data for the statements laid before the Commission are derived from the determination of the amounts of chlorine contained in certain samples of water, taken on certain days, at various points of the Thames from Teddington and the Southend. To these are added the known quantities of land water and of sewage entering the river on each of the days in question.

The problem of the proportion of sewage present has been worked out by several independent methods with very concordant results. "Nobody has hitherto anticipated that liquid discharged into the river at Barking could be transported by any natural causes, many miles up the river, directly in the face of the powerful descending stream of land water; but that this effect is produced can no longer be doubted."

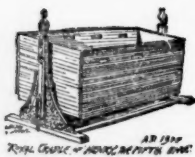
The Metropolitan Board of Works put forward that the sewage, during its oscillation, travel and mixing, becomes so quickly oxidized and purified as to lose almost immediately all its offensive qualities, and to become as innocuous as the natural water in the river. This argument receives consideration in the third part.

Part 3 deals with the question whether any evils result from the system under which sewage is discharged into the Thames.

After noticing the voluminous evidence of various kinds given, the Commissioners state the summary of their conclusions in a series of concise paragraphs, twenty in number. Though the river is "not as it should be," no evil has yet been done to navigation. Fish, however, have disappeared below and above the outfalls. There is a partial purification of sewage by oxidation, and this purification is carried further by the action of animal and vegetable organisms. Between Greenwich and Greenwich the effects of sewage discharge are apparent at all times, but above Greenwich there is not ground for serious complaint. It is, however, added, "that the evils and dangers are likely to increase with the increase of the population."

The question of remedies is reserved for further consideration.

POTTERY IN WALLS.



the month of July last year, Mr. George Lowdon, optician, Dundee, called my attention to certain "jugs" or jars which, he said, were to be seen built into the walls of one of the old houses about to be demolished. I lost no time in visiting it. The building was (for it has since been removed) three stories in height, with attics in the high pitched roof, which was covered with gray stone slates, and filled up the whole space between two narrow passages called Scott's Close and Harris's Close, the former being on the west side of the building, and close to the site of Whitehall Palace, said to have been used as a

A PAPER has been communicated by Mr. Alexander Hutcheson, architect, Dundee, to the Society of Scottish Antiquaries, upon the discovery of earthenware jars in the walls of a house in Dundee. It is as follows:—

During the removal of several old buildings on the south side of Nethergate, Dundee, to make way for a new street, in

residence at different times by James IV, James V, Mary, James VI, and Charles II. It was on this site that the jugs were seen. Three of them were placed in an almost equilateral triangle between two of the west windows of the upper floor, and two at the south side of a window at about the same level in a little room occupying the top of a projecting stone staircase. A sixth jug was afterwards discovered at the north side of the northernmost of the two centre windows, when the roof of a cross two-story wing was removed. All the jugs were built into the outside of the wall, and had their orifices flush with the face of the wall. When the wall was broken down, the jugs were found to be of various shapes, but all of a reddish-brown glazed ware, having handles on one side. One of the specimens had evidently never been used previous to being built into the wall, because some of the scoriae of the kiln still adhered to the bottom of it. When placed in the walls the jugs lay horizontally, with the handles to one side. Two of the jugs were very much decayed, so much so that only fragments of them remained in the holes; others were fairly preserved. One of them measured three and three-fourths inches across the mouth, widening out slightly in the inside, by four inches deep. The remaining two measured two and one-half inches across the mouth. Great care was exercised when the walls were broken down, but only two of the jars could be taken out tolerably whole, and these are to be deposited for preservation in the Dundee Museum. The jugs all adhered so firmly to the mortar, and some of them were so much decayed that they crumbled to pieces on the mortar being broken. To all appearance they had been built into their places when the wall was originally erected.

My friend, Mr. A. C. Lamb, F. S. A. Scot., who was most assiduous in his efforts to secure the safe removal of the jugs, recalled to my recollection the discovery at a prior date of a similar arrangement of jugs in another old building, known as Wedderburn's Land, which stood farther to the south. In this case the jugs were placed at regular intervals beneath the sills of the upper-floor windows. Unfortunately, in this instance none of the jugs were got out whole, and the fragments were not preserved. One of the jugs was stated to have been of a curious green glass, and of antique shape. The tradesman who told me this remarked that he had seen other examples in the town, but a most careful search in the localities he indicated failed to discover them, nor, in being appealed to, could he point them out, and probably the buildings where they occurred have also been removed.

In the course of my inquiries I learned that, so far from the jugs being confined to the outside of Wedderburn's Land, the workmen who took down the walls discovered them in great numbers in the inside walls of the staircase. The staircase was a wide and ample rectangular adjunct on the west end of the main building, and was separated therefrom by a thick stone wall or gable, and it was in this wall, as well as in the front or outer wall of the staircase, that the jugs were found in such numbers, and as in the building in Scott's Close, they were laid horizontally, and had their mouths flush with the inside face of the wall. In this case, being towards the inside of staircase, the openings were all plastered over, but the jugs had not been filled with the plaster, of which there was only so much in the neck or mouth of each jug as was sufficient to hold the plaster-work.

The use of jugs or vases in architecture is not unknown, but so far as I am aware, no instance has been previously noted of their use in the walls of dwelling-houses. It has been suggested that these jugs may have been intended for bird's-nests. Instances occur in Continental cities of provision having been made in steeples for this purpose. Fosbroke says that pigeon-holes were common in the roofs of Roman houses, and mentions that the upper story of Egyptian houses is almost always devoted to pigeons.

On a review of the case, I should be inclined to ascribe this instance of the use of jugs to some superstitious observance now forgotten. It must ever be regretted that such an interesting example of this curious architectural feature as that presented by Wedderburn's Land should have been swept away without any skilled examination being made, and thus the opportunity perhaps lost forever of throwing light on what cannot but be regarded as an omitted, because unsuspected, chapter in the history of the domestic architecture of Scotland.

AS TO MILL-CONSTRUCTION METHODS.

INDIANAPOLIS, IND., June 7, 1884.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—In the *Architect* of May 31st, I notice a communication signed by J. A. F., under the heading of "As to Mill Construction," wherein he speaks of the mill-floor construction and the wire-lathing as being quite old, which is no doubt the case. By this means he would detract from the credit of certain individuals or companies who are partially responsible for its recent re-introduction. As I see it, it is not the parties who introduced it thirty or more years ago, and whom he mentions, who are deserving of credit in this matter, but rather those who have taken up the matter in recent years, and proved its usefulness. It is rather a matter of discredit to those who have had to do with this system of construction in times past, that they did not recognize the good there was in it, and continue in its use.

Building construction can best be estimated from an insurance stand-point. Any detail or form of construction which costs less to insure than some other form or detail is better in proportion to that difference. The Factory Mutuals of New England who take risks

upon cotton, woolen, paper, jute and cordage mills, agricultural-machine works and other special hazards of like kind, have given this question of construction very serious consideration. I have figures which bear the date of August 1882, which state that the cost of insurance during the whole period of existence of the several companies has been less than one-half of one per cent, and for the last five years to less than one-fourth of one per cent.

For eighteen months previous to the time mentioned the Boston Manufacturers' Mutual carried about \$60,000,000, loss less than \$60,000. This shows less than one-tenth of one per cent for eighteen months. For the benefit of those who do not know what it usually costs to insure the property of those engaged in the same class of manufacturing business I will say that, outside of the limits fixed by these companies for doing business, which is never greater than five hundred miles from Boston, the rate is from one and a half to four and a half per cent, and while it cannot be said that this is entirely owing to the methods of construction, it may be said that this element contributes more largely in bringing about these most wonderful results than does any other under their control. It has remained for the Factory Mutuals to prove the insurance value of the "slow-burning" system of construction.

It is said that the efforts of the architect have been neutralized by those of the underwriters. They have been neutralized to the extent that the "fire tax" is now the heaviest tax imposed on this nation. Loss by fire is \$100,000,000 a year, or one per cent on a very large estimate of our annual product, which cannot exceed \$10,000,000,000 in value. It is said that the ordinary stock-insurance company will make no difference in the insurance rates on a building constructed according to the Factory Mutual's methods. This is true because their rates are based on experience, and it takes time to denote the actual insurance value of various constructive methods to these companies. The rates are fixed by their losses, and as the losses grow less the rates will grow less. But there is this thing to be remembered about buildings which are used for commercial purposes, and that is, that an insurance company indemnifies against loss to property only; that it does not indemnify against loss to business. True insurance is protection. Simple indemnity for the loss to property is a detail. Good construction is an indemnity against loss to business.

In the years which have passed we have done a great deal of very poor building, and the insurance experience has suggested high rates, and merely because it will take a little time for experience by better methods of construction to make them lower is no reason why such matters should be neglected. By studying this question, and presenting it from a commercial stand-point the writer has had no difficulty in having the constructive methods mentioned largely adopted.

As to the difference in cost. In two sets of buildings on which I am engaged, and which are to cost about \$300,000 each, solid wooden floors and partitions are used; the difference in cost between this method and the common one with wooden joists and plastered ceilings was estimated by the contractors to be about \$6,000 on each building, that is, two per cent in this instance; the slow-burning construction costing that much more.

LOUIS H. GIBSON.

A CURE FOR A WET CELLAR.

June 9, 1884.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs, Will you kindly inform me if it is possible to keep a cellar dry that is built in soft springy earth, where there is no opportunity of disposing of accumulated water by means of a "French drain," as no outlet for the same can be afforded, owing to the level character of the surrounding land?

Respectfully yours,

HARLEM.

[It is possible, but costly, as a water-tight sheathing of asphalt or clay must be constructed around and under the cellar, to the height at which the water stands. — EDS. AMERICAN ARCHITECT.]

A CORRECTION.

BOSTON, June 14, 1884.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—I find a printer's error in the "Report on Siphonage," which ought to be altered before the report is copied by others. Please notice its correction in your next issue, as it makes nonsense of an important sentence. It is in the 26th line of the "Deductions from the Experiments on Evaporation," the words "was absolutely saturated," should read "was not absolutely saturated."

Sincerely yours,

J. P. PUTNAM.

NOTES AND CLIPPINGS.

ROMAN RELICS AT GENEVA.—In the early part of last winter operations were begun in the bed of the Rhone, at Geneva, in connection with a scheme for utilizing the power of the stream for mechanical purposes. During the work a part of the river-bed, near the island on which stands Julius Caesar's tower, and where Philibert Berthelier, the Genevan patriot suffered death, was laid bare, and in view of the great antiquity of Geneva, and the fact that it was an Allobrogean town before it became a Roman station, sanguine expectations were entertained as to the likelihood of making important archaeological finds. For the most part these expectations have been disappointed. The river flows out of the lake with the swiftness of a rapid, and only very large or deeply-imbedded objects could withstand for centuries the onward

sweep of the rushing stream. The hopes of local antiquaries have not, however, been altogether disappointed, for a few days ago there was found, buried in gravel among a range of piles, relics of the lacustrine age, a block of white Jurassic rock, evidently dressed by the hand of man, and having in the centre a circular depression surrounded by a sort of crown. Further examination showed it to be the upper part of a Roman altar. It is in the ordinary form of a pilaster with capitals and a corresponding base terminating in a crown, in relief, cut in the stone. The height of the relic is 80 centimetres, the width 33. There is no other trace of ornamentation than the mouldings and cornices of the upper and lower parts, but on the principal face there appears an inscription in superb letters, and in an admirable state of preservation. . . . The author was a soldier of the Twenty-second Legion, Caius Vitalinius Victorinus, who, having without doubt, escaped shipwreck on the lake, had vowed to raise an altar to Neptune, the god of the waves, and by a singular chance the whole stone of the Jura, which testifies to the fulfilment of his vow has been preserved by falling into the very waters from which he was saved. This deity was doubtless widely worshipped on the shores of the lake in the olden time. Notwithstanding the beauty of the characters the inscription of Vitalinius is not considered to date further back than the end of the second or the beginning of the third century. — *London Times*.

THE STATUE OF DAIBUTSU.—The most famous of Japanese statues has been measured, and it is found that the image of Daibutsu at Nara is of the following dimensions: Length of back, 38 feet; length of face, 8 feet; breadth of face, 6 feet 7 inches; long diameter of ear, 2 feet 3 inches; length of eye, 2 feet 5 inches; length of nose, 3 feet 5 inches; height of nose, 2 feet 6 inches; diameter of nostril, 2 feet; length of mouth, 2 feet 6 inches; length of hand 4 feet 8 inches; circumference of waist, 25 feet.— *N. Y. Evening Post*.

DELHI.—The Villa of Asoka, at Delhi, still publishes its noble Buddhist edicts of peace and good will to men. The portions of the temple broken by British guns have been put together as neatly as possible, and the pillar stands beside the modern monument in a meek and lowly way. Time and weather have better spared another of these pillars on a ruin, where it is called Feroze Shah's Lat. It is over forty-two feet high, and the inscriptions are in the most ancient Pali characters. Five hundred years ago the legend had gathered about this pillar that it had been the staff of the Hindu shepherd god, and that it could not be removed from Kumaou, where it then stood, till the Day of Judgment. Feroze Shah, to end this superstition, removed the stone to the precincts of his own palace. That palace is now visible simply as the gray pedestal of Asoka's Pillar of Immortal Edicts, which still shines golden in the sunlight, fulfilling its last words: "Let this religious edict be engraved on stone pillars and stone tablets, that it may endure forever." — *Philadelphia Press*.

A NOVEL METHOD OF DRAINING.—Recent experiments of Colonel John P. Fort, in south-west Georgia, in pond draining promises a revolution in the malarial sections of the South, which embrace the richest part of the country, and cover millions of acres. The great drawback of Florida, Louisiana, the rice sections of South Carolina and Georgia has been the fact that white men could not live there on account of brackish drinking-water, and malaria inseparable from floods and swamps. Several years since, Captain Fort, who owns much property of this description, conceived the idea of sinking artesian wells, holding that when a certain stratum was reached pure water could be obtained in abundance. His efforts were crowned with such success that every town in southern Georgia is sinking artesian wells. The water is perfectly clear, sweet, and pure as the best to be found in the highlands. This success led Colonel Fort to try the experiment of draining stagnant ponds by running them off through subterranean passages that are known to exist at a distance of from seventy to a hundred feet below the surface. Colonel Fort's experiment was made on his hickory level plantation, in Dougherty County, and the pond upon which he experimented is situated about two hundred yards from his pioneer artesian well. The pond covered an area of about two acres, with a depth of ten feet in the centre. To drain it thoroughly an outlet must be made in the deepest part. To accomplish this Colonel Fort bound four substantial pieces of timber together, floated them over the centre of the pond, and upon this foundation built his raft or pen, which sunk as it was added to. When the raft had been built, the foundation resting on the bottom of the pond, the platform was placed across the top, and on this platform a derrick was set up. To this derrick boring apparatus was attached. At first a pile-driver was used, but when the pipe had been driven down through the bottom of the pond to a depth of thirty feet it rested on solid rock, and then the work of drilling and boring was begun. At a depth of fifty feet below the bottom of the pond the drill struck an opening, and at once the water commenced to sink with a roar through the big pipe, the top of which was only a few inches under water. The drill-pipe was drawn out, and the pond commenced to empty itself as fast as the orifice that the drill had made through the rocks would permit the water to flow. When the water in the pond was level with the top of the pipe a reamer was attached to the drill-pipe, and sent down to open the way for the big pipe to be sunk deeper. In this way the pipe was sunk until a joint of two sections was almost level with the bottom of the pond, and there it was unjointed. Colonel Fort will have a square pit dug around the pipe, and the pipe will then be driven down to a level with the bottom of this pit. The top of the pipe will be covered with wire to keep trash out, and the pit will be filled with rocks, and thus the drain will be kept open. This strange scene of emptying the pond into subterranean channels has been witnessed by hundreds of people, who see in it the reclamation of the millions of acres of swamp lands in the South. Thus, within two hundred feet of each other, were two pipes, that of the artesian well throwing up the purest of drinking-water, and that in the middle of the pond sucking stagnant water into the bowels of the earth, and carrying it away. The experiment cost only \$75, while there were gained from it over two thousand tons of compost soil. — *Boston Transcript*.

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.]

299,944. WINDOW-SASH.—Louis L. Arnold, Chicago, Ill.
 299,960. VENTILATOR FOR WINDOW-SASHES.—Edward Wells Chadwick, Edgartown, Mass.
 299,962. WRENCH.—John Combs, Rushville, O.
 299,965. SMOKE-CONSUMING FURNACE.—Alexander Crawford, Duluth, Minn.
 299,967. FIRE-ESCAPE.—Oscar F. Davis, Topeka, Kans.
 299,970. AUTOMATIC FIRE-ALARM.—Herbert N. Fenner, Providence, R. I.
 299,984. WOOD ORNAMENTATION.—John P. Jamison, Cambridgeport, Mass.
 299,993. RULER.—John E. Mann, Cleveland, O.
 299,999. CISTERN FOR SERVICE-BOXES.—John G. Morrison, Williamsburg, N. Y.
 300,005. JOINT FOR LEAD PIPES.—Wm. R. Patterson, Chicago, Ill.
 300,013. BRICK-KILN.—Wm. H. De Valin, San Rafael, Cal.
 300,059. GRATE.—Charles H. Fisher, Wheeling, West Va.
 300,075. HEATING AND VENTILATING DEVICE FOR BUILDINGS.—Amanda M. Hicks, Clinton, and Alonzo Dishman, Paducah, Ky.
 300,079. CHIMNEY-COWL.—J. Worth Jackman, Herbert B. Neighbor, John R. Stuck, and Samuel F. Habitzel, Lafayette, Io.
 300,090. FIRE-ESCAPE.—John Larson and August W. Hagstrom, Stockholm, Wis.
 300,091. FIRE-ESCAPE.—William Lawrence, Worcester, Mass.
 300,105. WINDOW.—John Bartlett Montague, Jas. Thomas Booker, and Enoch Cass Dinning, Franklin, Ky.
 300,112. FIRE-ESCAPE.—Robt. E. Nelson, Sr., Cumberland County, Va.
 300,119. LUMBER-ELEVATOR.—John Paul, La Crosse, Wis.
 300,127. SLIDING-JAW WRENCH.—William H. Ratcliff, Middleborough, Mass.
 300,130. SINK.—Charles F. Regan, Brooklyn, N. Y.
 300,132. HYDRAULIC-ELEVATOR.—Oliver P. Rice, New York, N. Y.
 300,134. ELECTRIC BELL AND ANNUNCIATOR.—David Rousseau, New York, N. Y.
 300,138. WINDOW.—Nils F. Sandelin, Chicago, Ill.
 300,138. HATCHWAY-GUARD.—John Scherer, Baltimore, Md.
 300,145. WRENCH.—Henry Simon, Jr., Chester, Conn.
 300,146. SCREW-DRIVER AND HOLDER.—John Sinnott, Chicago.
 300,150. FEEDING AIR TO FURNACES.—Sidney Smith, Cambridge, Mass.
 300,169. DOOR-CHECK.—Otis Palmer Vandeburgh, Toledo, O.
 300,178. CARPENTER'S WORK-BENCH.—Clarence Adelbert Williams, Webster City, Io.
 300,190. FIRE-EXTINGUISHING COMPOUND.—N. Gray Bartlett, Chicago, Ill.
 300,207. STRAIN-HEATER.—William C. Brownson, Saratoga Springs, N. Y.
 300,243. VENEER-CUTTING MACHINE.—Charles W. Gage, and Adelbert S. Gage, Homer, N. Y.
 300,248. FIRE-ESCAPE.—Henry Greene, Philadelphia, Pa.
 300,253. ELECTRIC BELL.—Edgar W. Hazazer, New York, N. Y.
 300,258. ELEVATOR.—Martin W. Hoben, Cohoes, N. Y.
 300,263. SASH-CORD FASTENER.—Henry F. Jencks, Pawtucket, R. I.
 300,266. CABINET-SHAVE.—John A. Keiser, Cincinnati, O.
 300,277. STONE-DRESSING MACHINE.—James W. Maloy, Somerville, Mass.
 300,307. SASH-HOLDER.—Joseph Peter Centner, Pittsburgh, Pa.
 300,308. FIRE-ESCAPE.—Jesse A. Crandall, Brooklyn, N. Y.
 300,334. ELECTRIC DOOR-LOCK.—Conrad Wuest, Zurich, Switzerland.

SUMMARY OF THE WEEK.

Baltimore.

BUILDING PERMITS.—Since our last report thirty-three permits have been granted, the more important of which are the following:—
 Thos. W. Long, 4 two-sty brick buildings, w s Duncan Alley, s of Pratt St.
 Geo. C. Hershman, 6 two-sty brick buildings, n s Lancaster St., w of Luzerne St.
 Daniel Plock, three-sty brick building, s w cor. Cross and Paca Sts.
 W. A. Hanway, 8 three-sty brick buildings (square), s s Robert St., between McCulloh and Madison Sts.
 John Glenn, 7 three-sty brick buildings, w s Carey St., commencing s w cor. Franklin St., and 7 three-sty brick buildings, s s Franklin St., w of Calhoun St.
 Geo. A. Blake, 4 three-sty and mansard brick buildings, w s Charles St., between Biddle and Preston Sts.

Wm. Keyser, 2 three-sty brick buildings, e s Valley St., between Biddle and Chase Sts.
 John S. Magarity, 3 three-sty brick buildings, s s Preston St., e of Ensor St.
 Thos. P. Johns, 4 two-sty brick buildings, n s Hamburg St., w of Paca St.
 J. R. Miller, three-sty brick building, s s Baltimore St., w of Payson St.
 John Keller, three-sty brick building, s s Baltimore St., w of Payson St.
 John McElroy, three-sty brick building, w s Hanover St., n of Port Ave.
 Otto Goldbach, 5 three-sty brick buildings, commencing n e cor. Wolfe and Jefferson Sts., and 3 two-sty brick buildings, w s Chapel St., n of Jefferson St.
 Female Christian Home, three-sty brick building, 15 Green St., w s.
 Joshua Register, 10 two-sty brick buildings, e s Aisquith St., between Townsend and Lauvale Sts.
 S. D. Price, 4 two-sty brick buildings, w s Peabody St., e of John St.

Boston.

STORE.—A store and office-building is now being built on Warren Street, for F. A. Brooks, Esq., measuring 43' x 58', three-sty; W. G. Preston, of Boston, architect; Warren Hayford, contractor.
BUILDING PERMITS.—*Brick.*—Marlborough St., near Gloucester St., Ward 11, for Dr. J. C. White, dwell., 24' x 78' 4", five-sty flat; M. C. Grant, builder.
Wood.—Blue Hill Ave., Nos. 12-16, Ward 20, for F. W. Kitteredge, 3 dwells., 24' x 40' and 63' x 24' x 60' and 63' x 27' x 30', three-sty flat; Chas. W. Wetmore, builder.
Clifton St., near Cottage St., Ward 20, for Marshall S. Rice, dwell., 15' x 20' and 21' x 30', two-sty pitch; A. McDonald, builder.
Cheney St., cor. Maple St., Ward 21, for G. Z. Adams, dwell., 33' x 28' and 39' x 28', two-sty pitch; Seth Weston, builder.
Ashford St., opposite Malvern St., Ward 21, for John A. Sawyer, dwell., 20' x 26' and 41' x 42', two-sty pitch; S. P. Bennett, builder.
East Eighth St., Nos. 206-300, Ward 15, for Mrs. Sarah Barry, 3 dwells. and stores, 21' x 33' 10', three-sty flat; Lyman Locke, builder.
Poplar St., rear, near South St., Ward 23, for Abbie H. Otis, stable, 14' x 22', one-sty pitch.
Kensington St., near Parsons St., Ward 25, for Granville A. Fuller, stable, 22' x 30', one-sty pitch; Chas. W. Bowers, builder.
Saratoga St., Nos. 691 and 693, Ward 1, for Albert Starks, 2 dwells., 15' x 20' and 20' x 30', two-sty pitch.
Fairfax St., near Carruth St., Ward 21, for Herbert S. Carruth, stable, 16' x 28' and 25' x 28', two-sty pitch; F. N. Severance, builder.
Whitney St., Nos. 42 and 44, Ward 22, for Michael Moran, 3 dwells., 23' x 30', three-sty flat.
East Seventh St., Ward 14, for Jacob P. Powers, dwell., 19' x 34', two-sty flat; Jacob P. Powers, builder.
Chauceer St., Ward 1, for James Robertson, stable, 19' x 20', one-sty pitch; Edwin J. Turner, builder.

Chicago.

BUILDING PERMITS.—J. Williams, 2 two-sty dwells., 288 and 270 North State St.; cost, \$8,000; architect, J. Huber.
SCHOOL-HOUSES.—The contracts for building the Thomas Hoynes School, cor. of Cass and Illinois Sts., have been awarded, with a total of \$50,063.55; also the contracts for the building on the Lime-street lot, at a cost of \$3,000.
 J. J. Flanders, architect, has been directed by the Board of Education to prepare plans and specifications for a new school-building to be built on the Holstein-street lot.
 A. Abbott, two-sty store and dwell., 738 Van Buren St.; cost, \$4,000.
 J. McDonough, two-sty store and dwell., 490 Twenty-sixth St.; cost, \$4,000.
 A. Weber, two-sty dwell., 687 Jefferson St.; cost, \$3,000.
 G. Lenoch, three-sty dwell., 435 Jefferson St.; cost, \$3,500.
 C. D. Ferns, two-sty dwell., 18 Pine St.; cost, \$3,000.
 J. Schnoor, 2 two-sty dwells., 436 and 438 Dayton St.; cost, \$3,000.
 W. H. Hoyt, 5 four-sty dwells., 32 to 40 Pine St.; cost, \$40,000; architect, A. Smith.
 Thos. Mackin, two additional stories, 50-58 North Clark St.; cost, \$30,000.
 C. H. Cook, two-sty dwell., 559 Ashland Ave.; cost, \$2,800.
 M. Sillig, two-sty dwell., 142 Ambrose St.; cost, \$3,000.
 H. R. Payson, four-sty store and flats, 2413 and 2415 State St.; cost, \$14,000; architect, C. M. Palmer.
 M. Halligan, two-sty dwell., 531 Oakley St.; cost, \$2,500.
 M. A. Williams, two-sty dwell., 231 Lincoln St.; cost, \$4,000.
 J. F. Hastings, 4 cottages, 2926-2931 Lowe Ave.; cost, \$4,500.
 G. Deppish, three-sty flats, 339 to 347 Loomis St.; cost, \$17,500.
 Geo. P. Gubbins, two-sty flats, 492 Wood St.; cost, \$2,500.
 F. Foltz, three-sty dwell., 449 Dearborn Ave.; cost, \$15,000; architects, Treat & Foltz.
 H. T. Porges, three-sty store and dwell., 765 Halsted St.; cost, \$10,500; architect, W. Ruehl.
 C. Draback, three-sty store and dwell., 611 Centre Ave.; cost, \$6,700; architect and builder, A. Loula.
 A. Koler, three-sty dwell., 684 Nineteenth St.; cost, \$4,200; architect and builder, A. Loula.
 O. Strom, three-sty flats, 203 Illinois St.; cost, \$5,000; architect, H. N. Hanson.
 Mary J. Meager, four-sty store, 136 and 138 West Madison St.; cost, \$30,000; architects, Parsons & Sons, Quincy, Ill.; builder, J. Downey.
 E. S. Pike, three-sty addition to dwell., 2101 Prairie Ave.; cost, \$5,400; architect, F. L. Charnley; builder, W. A. Barton.
 D. E. Marton, three-sty dwell., 80 Morgan St.; cost, \$5,000; architect, Wm. Strippelman.

St. Johns School, two-sty school-house, 380 North Wood St.; cost, \$2,700; architect, H. Clay.
 A. Manson, three-sty dwell., 20 Hill St.; cost, \$5,000; architect, Otto; builder, C. Lind.
 J. R. Willett, 2 three-sty stores and dwells., 953 and 955 West Madison St.; cost, \$10,000; architect, J. R. Willett; builder, John Cox.
 C. Passon, two-sty dwell., 177 Wright St.; cost, \$5,000.
 I. E. Kimball, 2 two-sty dwells., 442 and 444 Thirty-seventh St.; cost, \$15,000; architect, L. C. Quackenbush; builder, A. McIntosh.
 E. Barbour, two-sty dwell., 28 Delaware Pl.; cost, \$6,000; architects, Treat & Foltz; builders, Bodner Bros.
 R. Krenz, two-sty dwell., 77 Jay St.; cost, \$3,400; architect, W. Arend.
 R. Langan, three-sty dwell., 294 Superior St.; cost, \$6,000; architect, F. H. Waecher.
 Mrs. McCormick, three-sty dwell., 1715 Michigan Ave.; cost, \$5,000; architects, Adler & Sullivan; builders, Lund & Gilbert.
 S. Wheeler, three-sty dwell., 42 Cedar St.; cost, \$3,000; architect, N. Zarbell; builders, Lund & Gilbert.
 J. Featherstone, 3 two-sty dwells., 89 to 93 Park Ave.; cost, \$12,000; architect, F. Baumann; builder, L. Weick.
 John Featherstone, 2 two-sty dwells., 14 and 16 Wood St.; cost, \$6,000; architect, F. Baumann; builder, L. Weick.
 J. Ratke, two-sty dwell., 164 Sheffield St.; cost, \$3,800; architect, Burling; builder, J. Herd.
 M. Mueller, three-sty store and flats, 2958 State St.; cost, \$6,000; architect, E. B. Righter; builder, B. G. Robinson.
 A. Friedrich, two-sty dwell., 152 Centre Ave.; cost, \$5,000; architects, Schaub & Berlin; builders, Hodson & Gillespie.
 H. Stump, two-sty flat, 634 West Harrison St.; cost, \$3,000; builder, H. Stump.
 J. K. Russell, three-sty addition, 90 and 92 Fulton St.; cost, \$3,000.
 M. Fitzgerald, three-sty flats, 1008 Dearborn St.; cost, \$3,000.
 C. K. Miller, three-sty dwell., 542 and 544 North State St.; cost, \$18,000; architect, A. M. F. Coldan.
 M. Lonen, two-sty store and dwell., 170 East North Ave.; cost, \$3,400.
 G. W. Burchard, 3 two-sty dwells., 2339 to 2343 Forest Ave.; cost, \$10,000; architect, J. Hustan; builder, J. Bezdell.
 J. L. Hathaway, shelter-shed, Kingsbury St.; cost, \$5,000.
 A. Crane, 3 one-sty cottages, Lowe St.; cost, \$3,000.
 J. Traynor, two-sty dwell., Taylor St.; cost, \$4,500.
 M. Batta, two-sty store and dwell., 2713 Wentworth Ave.; cost, \$5,000; architect, M. Batta; builders, Goodrich Bros.
 Mrs. W. H. Murray, two-sty dwell., 1919 Prairie Ave.; cost, \$30,000; architect, S. S. Beman; builders, McDermott & O'Brien.
 E. Stamsand, two-sty flats, 101 George St.; cost, \$3,000.
 J. H. Winterburn, two-sty dwell., 556 Van Buren St.; cost, \$3,000.
 S. Dreselhouse, two-sty store and dwell., 163 Fowler St.; cost, \$4,500.
 R. Pfeifer, two-sty dwell., 13 String St.; cost, \$2,800.
 F. C. Miller, two-sty dwell., 186 West Eighteenth St.; cost, \$4,300; architect and builder, F. C. Miller.
 Wm. Hubbard, two-sty dwell., 438 LaSalle Ave.; cost, \$4,000.
 Ward & Gnaesslen, two-sty packing-house, Weaver St.; cost, \$12,000; architect, T. Karis.
 The Board of Education, three-sty school-house, Snell St.; cost, \$44,000; architect, J. J. Flanders; builders, Robinson & Miner.
 M. Meyer, 2 three-sty dwells., 255 Rush St.; cost, \$8,000; builder, C. Weelner.
 Hurd & Shatterly, 8 cottages, Thirty-second St.; cost, \$12,000.
 H. Beidler, five-sty factory, 125 to 139 West Washington St.; cost, \$60,000; architect, J. J. Flanders; builder, Thos. Nicholson.
 Geo. E. Adams, three-sty store and flats, 2501 Calumet Ave.; architect, F. H. Washer; builders, Miller & Scheel.
 C. Freemith, three-sty flats, 252 Division St.; cost, \$4,000.
 G. Bullen, three-sty flats, 333 and 335 Illinois St.; cost, \$3,900.
 A. Rumann, three-sty store and dwell., 191 Dayton St.; cost, \$8,000; builder, C. F. Prussing.
 Howling & Crowhurst, 3 cottages, 1107 to 1111 Elston St.; cost, \$3,000.
 Wm. Meltae, three-sty store and dwell., 733 Van Buren St.; cost, \$7,000.
 Washington Boulevard Skating Rink Co., skating-rink, Washington St., cor. Curtis St.; cost, \$50,000; architects, Burham & Root; builder, Chas. Taylor.
 Geo. Kingles, three-sty store and flats, 770 and 772 Milwaukee Ave.; cost, \$12,000; architect, G. Kley; builder, F. Hanson.
 G. Thomas, 2 two-sty stores and flats, 107 and 109 Lincoln Ave.; cost, \$4,000.
 F. Gelneck, two-sty dwell., 554 West Twentieth St.; cost, \$2,500.
 J. Seiver, two-sty dwell., 755 Loomis St.; cost, \$3,700.
 J. Rebaich, two-sty dwell., 1087 Blue Island Ave.; cost, \$2,500.

Cincinnati.

STORE.—Mr. Christ. Moerlein is to build a six-sty brick store, with terra-cotta and freestone finish, on n w corner of Pearl and Race Sts., 48' x 61'; cost, \$25,000; architect, Mr. Geo. W. Rapp.

Detroit.

BUILDING PERMITS.—The following permits have been granted since our last report.
 William Scott & Co., brick dwell., 821 Woodward Ave.; cost, \$37,000.
 William Scott & Co., block of brick stores, 12-125 Woodward Ave.; cost, \$25,000.