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THE usual first of April strikes occurred among the building trades in most of the large cities, and the demands of the men were in most cases acceded to. Whether their terms can be maintained throughout the season is doubtful, but building operations bid fair to continue moderately active for a year or two at least, and the men engaged in them will prosper accordingly until their number is increased by accessions from those deserting less profitable employments. In Allegheny City, a movement has been made to induce contractors to combine for the purpose of extorting ten dollars as compensation to unsuccessful bidders for their trouble in making estimates, but the meeting called for the purpose of urging this reform was very thinly attended, and the proposition met with little favor.

THE New York Board of Health has pronounced a portion of the Twenty-third Ward, in what is called East Morrisania, unfit for habitation on account of its malarious character. The district lies near a small stream known as Bungay Creek, and some of the water, which ultimately finds a passage through this creek into the Sound, stagnates on the way, forming a marshy pond, whose borders have long borne an evil reputation for their malarious character. For some time the Board has been endeavoring to persuade the owners of the territory to have it properly drained, but without success, and the final step of official condemnation of the land was necessary in order to bring it within the reach of the public authority. Under the law of 1880 the certificate of the Board, together with maps of the region, will now be placed in the hands of the Commissioners of Public Parks, who will cause the ground to be properly and thoroughly drained, and will assess the cost of the improvement upon the land, to be collected like other official liens. It is fortunate for the people of New York that they enjoy, even for a time, the services of so energetic a Board, and still more fortunate that the Board should be able, with the authority of the Legislature, to enforce its admonitions so effectually.

A NEW park scheme is under discussion in the New York Legislature, the proposition being to establish a pleasure-ground for the inhabitants of that portion of West Chester County lately constituting the villages of Morrisania, Mott Haven, Tremont and Fordham, but now annexed to New York City as the Twenty-third and Twenty-fourth Wards. The Park Commissioners, although favorably disposed toward such a plan, advise caution in acquiring land for the purpose, and suggest that the adjoining owners should first consent to an assessment for a fair proportion of the cost of the park. In case the inhabitants of the territory lying east of the new wards should desire annexation to the city, it would, the Commissioners think, be advisable to take up the subject more seriously, since this district is now mainly occupied by gentlemen's country seats, comprising extensive and well-kept grounds, which could be converted into park lawns and groves with a very small outlay. It will probably be many years before this region becomes densely populated, but it is only about two-and-a-half miles beyond the Central Park, and it would certainly be wise to adopt a comprehensive scheme, and secure control of the land, as early as possible.

IT is very common for the periodicals devoted to art to take special pains in recording any sales of pictures by living artists at particularly high prices, "to encourage other painters," as they say; and with a similar object we are glad to be able to say, on the authority of the *Builder*, that at the sale of the library of the late distinguished architect, William Burges, a single small book, filled with his own sketches on vellum, brought the large sum of two hundred and eighty-five pounds, or nearly fifteen hundred dollars, while two hundred and eighty-six pounds were paid for a miscellaneous collection of measured drawings and sketches, in twenty-five volumes. As Mr. Burges's drawings, many of which have been published, were of no great excellence as works of art, not comparing, for instance, in this respect with those of Prout, Ernest George, or Norman Shaw, it is the more remarkable that they should have met with such high appreciation. Who were the purchasers is not stated, but the prices indicate that the number of those desirous of possessing them was large enough to create a lively competition at the sale.

THE *Builder*, in describing the various forms of concrete materials which are shown at the Building Exhibition now open in London, makes some just criticisms upon the want of discrimination shown in the designs used by the manufacturers. Mr. Lascelles, for instance, whose long connection with Mr. Norman Shaw should have taught him better, exhibits slabs of red concrete moulded into an imitation of a wall hung with tiles, and another well-known manufacturer contributes a full-sized two-story cottage, of which the lower part represents ashlar stone-work, the upper story half-timbered framing filled in with plaster, and the interior a moulded panelling of wood, the whole being fictitious, and consisting only of concrete. One of the most remarkable exhibits is a set of concrete doors, no thicker than the ordinary wooden ones, and made in exact imitation of them, the stiles and rails of the framing, the panel-mouldings and mitres, being reproduced with an amount of labor which if expended upon a design suited to the material would have produced a work of the greatest interest, instead of an artistic barbarism. The tendency of the concrete-makers seems to be to improve the color and appearance of their goods. Bath-tubs and chimney-pieces in bright-red composition occur among the exhibits, and there are several imitations of marble, of which the most successful appears to be a conglomerate of cement and fragments of white marble. This is warmly praised by the *Builder*, and seems to possess something the appearance of the Echaillon stone.

OUTSIDE of the concrete materials, several novel objects are exhibited: one of these is a double-hung sash, apparently contrived with a double outside framing, the inner portion pivoted to the other, so that by turning a key in the side of either sash it can be swung into a horizontal position, for convenience in washing; or both sashes may be swung out at once, and pushed up together to the top of the frame, so as to leave the space open for taking in furniture. Another manufacture which seems full of promise is a revived form of the Della Robbia ware, consisting in glazed earthenware panels in high relief, for exterior decoration. The design is said to have been in this particular instance rather tame, but of course the capacity of the modeller would determine the quality in such respects, and we hope that architects will not suffer the idea to be abandoned. The same contributors, Cliff & Sons, as well as the Doulton establishment, send stoves in glazed stoneware or fire-clay, which are claimed to be cheap, as well as economical in use. Considering how universal the use of the stove is in the United States, it seems strange that some dealer should not have introduced a similar apparatus here. If it could be produced at anything like the price of the same thing in France or England, it would be almost certain of an extensive sale among that large class of persons who dislike the smell and the oppressive effect of the vapor from strongly-heated iron.

There is nothing more instructive to the professional man than the record of technical difficulties overcome, and we commend to our readers the following account of a discussion between a correspondent of *La Semaine des Constructeurs* and the editor, M. Planat. The correspondent had charge of a certain building, to be constructed on what appeared to be solid ground, but the excavation for the cellar revealed the fact that under one corner of the site existed a pit belonging to an ancient quarry, about forty feet deep, and filled with large stones and water, which could not be removed, even by continual pumping, while the loose character of the surrounding soil rendered it dangerous to excavate to a great depth without artificial means of sustaining the sides of the pit. Under these circumstances he proposed to drive a group of screw-piles in the required spot, and build upon them a mass of concrete and masonry, from which his walls could be carried up as from firm ground, but before commencing he asked M. Planat's opinion of this expedient. M. Planat seems to have thought well of it, on the whole, although there might be danger of unequal settlements, but in his reply mentions other ways for overcoming such difficulties, one of which, at least, we think is quite new. Instead of the cluster of piles, a pier of masonry might, he believed, with advantage be carried down to the solid bottom of the pit, and the difficulty of pumping it out might be overcome by an adaptation of a well-known device for well-sinking. A preliminary excavation having been made, a circular curb of wood or iron should be set in it, and a low wall of masonry built on top; then the ground should be dug out beneath the curb all around, allowing it to sink a few inches, when another ring should be added to the masonry above it, and so on until the ring had descended to the required depth. If the wall were laid in cement, the water could be kept with comparative ease at or near the level of the ring, and the excavation of a few inches of earth at a time in the water below this level would not be difficult.

A simpler means for arriving at the same result would be to dig a pit as deep as the consistency of the soil or the flow of water would permit, and line it with a wall laid in water-proof cement. Then, sinking a small well three or four feet deep in the middle of the excavation, the suction-pipe of the pump should be placed in this, so as to drain the surrounding earth to nearly the same depth; and the workmen would be able, by digging under the lining wall, to underpin it, first inserting four piers, and then filling in the intervals. On the completion of this work the earth should be thrown out of the pit to the new level of the bottom of the wall, a second well made, and the operation repeated. In either of these ways the workmen would be entirely protected against the falling in of the earth above and around them, while water from the springs intercepted at various levels would be kept out by the wall; and M. Planat says that with good pumps a depth of twenty feet may be traversed in this way in very wet soils.

The great advance in prices of materials, together with the prevailing uncertainty as to the future cost of labor, have combined in Philadelphia to check building very seriously. Pressed brick, which were sold last year at eighteen dollars a thousand, now command thirty-five, and other materials have risen from twenty-five to fifty per cent, so that contractors estimate the total cost of ordinary building operations at about thirty per cent beyond the prices of last year. As a result, many projected improvements have been abandoned. One wealthy capitalist, who had proposed to erect some four hundred houses this season, has postponed his project to a more favorable time, and the number of permits issued this spring for building operations is said to be much less than during the same season last year, while the improvements for which permits are asked are as a rule of little extent or importance. Strikes have already begun among the workmen, but without much prospect of success in advancing wages permanently.

An elevator in the new building occupied by the War and Navy Departments, at Washington, fell last week from the third floor to the basement, carrying with it six persons who were badly bruised, but not permanently injured. The cause of the accident is said to have been the "dislocation" of one of the wire ropes, "which caused it to uncoil rapidly from the drum." What this may mean we are unable to imagine. The descent of the platform seems to have been partially checked, as might occur with steam elevators in case of the slipping of a belt, but the account gives no information which could serve as a foundation even for a guess as to the real circumstances. The correspondent of the Boston *Herald*, who furnishes the description, adds that "many of the elevators in the public buildings in Washington are in such a condition that prudent people prefer to remain outside of them." If this is so, it is time that the attention of the public authorities should be called to the subject. As the season advances multitudes of persons will visit the Capitol, and will use the elevators in question without a thought about their security; and if any one believes that there is reason to doubt this, it is his plain duty to give warning in season.

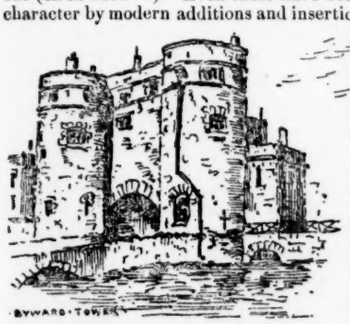
One of the most important church edifices in Ohio, the Roman Catholic church of St. Francis Xavier in Cincinnati, was totally destroyed by fire last week, causing a loss of about two hundred thousand dollars. The building belonged to the Jesuits, who collected the money for its construction by small subscriptions of one or two dollars, so that a very large number of persons have felt some personal interest in it during the twenty-five or thirty years since it was begun. There is so much that is worthy of respect and imitation in the Roman Catholic practice of building churches by the long-continued contributions of a large congregation, instead of with borrowed money, that it seems almost unfeeling to suggest that the natural desire of priests and people to hasten the completion of their house is apt to lead to a slightness of construction which is becoming too characteristic of Catholic churches. Well-planned as most of them are, and with good models always in view, the experienced architect is apt to feel an incongruity between the grandeur of interior effect which is usually aimed at, and the poverty of the means used to attain it. To him a lofty clerestory seems to imply a ceiling vaulted in stone, instead of furring and plaster, and the greater the extent of the structure, the more painful is the aspect which a cheap and temporary construction gives it. There it not much to be proud of, it is true, in the current methods of church construction, but a decided improvement has taken place within a few years, and the Catholic congregations, who are supposed to preserve more strictly than any others the wholesome traditions of mediæval building, should lead the reform instead of lingering behind.

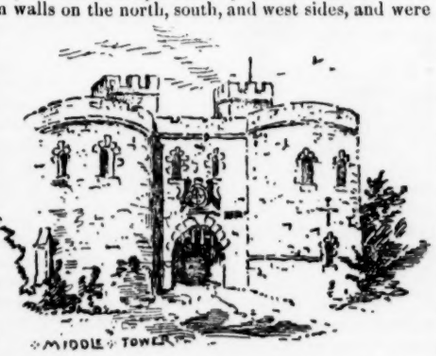
Two important prizes have recently been awarded by the Academy of Fine Arts in Paris. The first, known as the Prix Achille Leclere, was given to M. François Roux, for a design for a hippodrome. Another competitor, M. Delamer, a pupil of M. André, received honorable mention. The Achille Leclere prize is of considerable value, amounting to ten thousand francs, and is awarded each year for excellence in construction, as shown by designs for a given building, which are submitted in an annual competition. The second prize, that of Jean Reynaud, also of ten thousand francs, is awarded each year to some distinguished man, for excellence in one of the arts or sciences recognized by that embodiment of universal knowledge, the Institute of France, and was this year allotted to the department of architecture, and voted to M. Daumet, by a small majority over his friend and colleague, M. André. Many American architects who have been members of the Ecole des Beaux-Arts know MM. Daumet and André by reputation, if not as pupils, and will take pleasure in learning of the distinction which has virtually been conferred upon both.

The so-called Druid monument of Stonehenge, near Salisbury in England, has just undergone a species of "restoration," consisting principally in the erection of timber scaffolding and braces about the huge stones of which it is composed. Perhaps such shoring-up is preferable to the decay and fall of the great trilitha, but the impressiveness of the mysterious group of monoliths, rising out of the grassy plain, will be quite destroyed. The ignorance of the scientific world in relation to this strange structure and the others of the same character which occur in almost every part of Europe is quite complete. So far, the only important observation which has been made with regard to them is that in Spain and Portugal the dolmens or groups of such stones, are usually found near what must, from the character or the ground, have formed in the remote past the principal roads or lines of military operations. From this circumstance it has been suggested that they may have been set up by one or more invading expeditions, as guides to those which were to come after them. This seems not unreasonable, and the suggestion may possibly furnish a clue for further investigations.

THE TOWER OF LONDON.

WE all, and especially those Englishmen interested in historic records, regard with something like national pride that ancient palace citadel on the banks of the Thames, which in its turn has served its purpose as a Norman fortress, the chief stronghold of our monarchs, as a prison, and in later times as a depository of the national arms and accoutrements. Although we are accustomed to look upon it in the latter capacity, it is as a fortress we chiefly value it as a relic of bygone ages. An important Roman fortification also occupied the site, traces of which have lately been discovered, showing that before the massive Norman structure of William the Conqueror arose, there existed Roman works of an extensive kind. At the very foot of Gundulph's great White Tower, indeed, an excavation on the east side has revealed a part of the old Roman wall, which carries us back to a period long anterior to the Conquest. We look, however, to the Norman structures as those of greatest interest, or the chain of towers next the river, which was added by the successors of William to the outer ward, and notably by Henry III (circa 1216-72). Even these have been divested of their original character by modern additions and insertions. What is known rather paradoxically as the "Middle Tower," which, since the removal of the outworks, has become the entrance-portal to the fortress, has been spoilt by the addition of battlemented turrets and parapet in smooth ashlar-faced masonry over the old rubble work of the ancient gateway. The next tower, the "Byward," has shared a worse fate. The flanking-bastions have been topped by an addition of ashlar work and a brick parapet on the west side, while its eastern front presents the appearance of a modern house with a balcony. The Cradle Tower has been partly rebuilt, only the lower portion of the Well Tower remains in its original state, and the corner, "Develin or Irongate Tower," which was at the extreme east corner of the outer ballium wall, does not appear, its site having given place to a modern erection of poor character. Not only have the original towers been shorn of their ancient character and detail at various dates, but various brick buildings of an intensely uninteresting kind have been interpolated in the original structures since the time of the Stuarts. Many of these occupied the spaces between the outer and inner ballium walls on the north, south, and west sides, and were used for the works of the Royal Mint till it was removed at the early part of the present century. These buildings have been pulled down, together with many miserable shops and dwellings which clung to the outer walls till they were swept away about 1807. The Prince Consort did much to improve the Tower, and the late Mr. Salvin, who was called in as consulting architect, removed some of the objectionable erections. The warder's quarters were rebuilt in the style of the Tudors, the chapel of St. Peter was restored to its pristine state, and purged of many unsightly fittings of recent times; the outer wall on the south side, and the Cradle and Well Towers were put into repair, and some dilapidated stores used by the Royal Engineers removed. About the same date the hovel-like erections used as Irish barracks on the east side were swept away, and the Salt and Broad Arrow towers on the inner ballium wall on the east side were thrown open to view. These changes have considerably improved the external aspect of the Tower already. But they have not touched the chief blot in the present assemblage of buildings. The inner wall on the south side having been allowed to fall into decay, a huge and unsightly brick building was erected during the latter part of the eighteenth century, known as the Ordnance Office. This structure stands on the site of the old Lantern Tower, between the Salt and Record Towers of the inner ward, and its basement was turned into a cellar. In addition to its commonplace ugliness, it has effectually shut out the view of the White Tower from the river, and the work now to be accomplished is the removal of this obstruction. We understand an arrangement with this object has been made between the Secretary of State for War and the First Commissioner of Works, by which the warehouse will be given up. The First Commissioner has agreed to remove the buildings, and restore the line of the inner wall between the Salt and Record Towers. The foundations of the Lantern Tower are, it is affirmed, on the site of the Ordnance building, and it is possible to rebuild the latter structure as it appeared in its pristine days. We learn, on authority, that ample data exist to enable this tower to be restored in accordance with the original design. Drawings and models have been prepared of these towers under the direction of Mr. Taylor, of the Office of Works, who has been assisted by the able advice of no less an accomplished Gothic architect than the late Mr. Salvin. The total cost of the work is estimated at about £6,500, which sum will be reduced by the sale of old materials of the storehouse.





The already restored tower on the east side of the inner ward is a pledge, we think, of the faithful restoration of the inner wall and Lantern Tower. There is a massive plainness about these circular rubble towers which are characteristic of the feudal fortress, and it is only by an appreciative following of the spirit of the old work that success can be hoped for. All that has been done under the late Mr. Salvin's advice commands approval; the chapel of the White Tower is, since its restoration, one of the finest examples we have of the massive Norman of Gundulph's period, and the restored warder lodgings are in harmony with the Tudor style. About six years ago the interior of the chapel of St. Peter ad Vincula in the northwest corner of the inner ward was purged of its modern galleries and pews, a work which has been described by Mr. Doyne C. Bell in his book on "The Chapel in the Tower." Many interesting discoveries were then made. The Well and Cradle Towers were next restored, the latter of which has an interesting vaulted gateway that originally led to a drawbridge.

There yet remain, however, several modern brick erections to

clear away, among them being the Lieutenant's lodgings or Governor's house in the southwest corner, but more especially the unsightly and tasteless brick building to which we have referred, used for ordnance purposes, which blocks out the view of the White Tower from the river. Till these are removed and their sites brought into harmony with the ancient walls and bastions, the Tower of London must fail to impress the eyes of visitors with its true value as an ancient fortress. We should like to see also the Horse Armory, erected in 1826, brought into accord with the style of the White Tower, to which it now forms an unsightly adjunct in a bad Gothic style. When these restorations are completed, the Tower of London will be brought back, in outward appearance at least, to its state in the sixteenth century, when the whole of its ballium walls and towers were complete, and when it appeared from the river as a perfect type of a feudal fortress. — *The Building News.*

No. 1. *White Tower.* — Most ancient of all the buildings, at least so called, being begun in 1078 under the Bishop of Rochester, who was the architect. It is called so, we believe, from the fact of its being whitewashed now and then, an action due to an old document in Latin, written in 1241, and directing the methods of so doing. At bottom the walls are fifteen feet thick.

No. 2. *Byward Tower*, which we understand is the entrance to the outer ward of the works. Around this are now huddled unsightly modern buildings which do discredit to the view, due to the *march of progress* (?) no doubt.

No. 3. *Middle Tower.* — A good example of the fortified entrance with the usual bastions defended by gates and a *double* portcullis, which shows the grooves and method of using. This protects the entrance to the principal bridge.

No. 4. *Bloody Tower.* — This is the scene of the murder of Edward V and his youthful brother, Richard, Duke of York, by order of their uncle. Here is seen the machinery for lowering the portcullis. Directly opposite is situated the famous passage into the Thames known as the "Traitor's Gate."

No. 5. *Bell Tower*, which holds the alarm-bell which was only struck in times of danger. It confined Queen Elizabeth at one time, and also Bishop Fiske, who wrote the following to Cromwell asking aid: "I beseech you, good master, in my necessity; for I have neither shirt, nor suit, nor yet other clothes that are necessary for me to wear, but that be ragged and rent too shamefully. Notwithstanding I might easily suffer that, if they would keep my body warm. But my diet also, God knoweth how slender it is at any times."

No. 6. *Jewel House.* — This contains the regalia and crown jewels, about the only visible evidence of the palatial splendors which must have attached to the Tower in former days. The crown contains 2783 diamonds, besides two or three hundred other jewels. The above is Queen Victoria's crown, and of course there are dozens of lesser lights. Above the whole shows the famous Koh-i-noor diamond, which is valued at $10,000,000.

Beauchamp Tower, one of the most interesting places, contains the prisons and dungeons. Why a prison is interesting one can scarcely tell, unless that in it are often embodied the groans and very life-blood of another fellow-mortal. Here, however, we find many interesting inscriptions which must have helped the author to pass the weary time of imprisonment, which often ended in death.

No. 7 has no authentic record, but in the corner is seen "Robert Dudley," the Earl of Leicester, who when quite young was imprisoned for high treason, but was liberated by Queen Mary.

No. 8. — One of the Peverels, a name familiar to all readers of Sir Walter Scott's novel, Peveril of the Peak.

There is a singular and impressive clause: "Grief is overcome by patience." — G. Gifford. 1586."

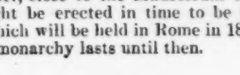
Another: "I. H. S. 1571 Die 10 Aprilis. Wise men ought circumspectly to see what they do — to *examine* before they speake, to prove before they take in hand, to beware whose company they use, and above all things, to whom they trust. — Chas. Bailly."

This man was an adherent of Queen Mary, and suffered tortures of the rack but would make no disclosures.

No. 9. A rebus which of course has interest but is easily read. Thomas Abel, a graduate of Oxford who was introduced to Court as domestic chaplain to Queen Catherine of Arragon. He was executed for denying the king's supremacy.

One of the best, however, in showing the calm and fearless spirit of a man in trouble has the following: "The most unhappy man in the world is he that is not pacient in adversities. For men are not killed with adversities they have: but with ye impacience which they suffer. — Chas. Bailly.

The simplest and perhaps most touching is No. 10, the letters in the Elizabethian style and attract more attention in consequence with their connection with poor Lady Jane Grey, who with her young husband, Lord Guilford Dudley, were the victims of the ambition of a father, etc.



Suggested Form for the Victor Emmanuel Monument. — It is proposed that the monument which the Italians are about to erect to the memory of their late king should be, not a statue or an obelisk, but a vast establishment to be called the Thermæ Victor Emmanuel, and to serve the purpose not only of a Roman bath, but of a winter garden and a summer theatre. This building would be erected on the banks of the Tiber, close to the Mausoleum of Hadrian, and it is thought that it might be erected in time to be used for the International Exhibition, which will be held in Rome in 1890 — always supposing that the Italian monarchy lasts until then.

ART IN ARCHITECTURE[1]

ARCHITECTURE arose from a purely physical want and is therefore the least personal of all the arts. It has to submit to many controlling circumstances from which other arts are free. It has to accommodate its work to the predestined purpose of the monument to be erected and its construction must be based upon sound and immutable mathematical laws. It is so dependent upon geometry and mechanics that sentiment and imagination have but little share in its work. Architecture is thus both a Science and an Art, and it is in this dual capacity that Mr. Leopold Eidlitz, one of the foremost of American architects, treats the broad subject in the important work before us, which is an earnest plea for the advancement of architecture out of the slough into which it has been sinking for the last five centuries, by infusing into its creations more true art — art being the expression of an idea in a material form. "It is the object of this volume to inquire into the causes of the present condition of architecture; to define the nature and functions of art in general and of architecture in particular, in order to show how architecture *may again become a living and creative art.*"

Before we enter upon a consideration of the questions here discussed let us look for a moment at the personality of the author who sets before us this plea, that we may learn something of his fitness for the work in hand. Mr. Eidlitz is an Austrian and has just entered upon his sixtieth year. He received his professional education at the well-known polytechnic schools of Prague and Vienna, and, coming to this country, established himself in New York, where for the last thirty-seven years he has been a practising architect. His first notable building was St. George's Church, erected for Dr. Tyng in 1845–48. Since then he has built many prominent edifices, among them the Church of the Holy Trinity, the Dry-Dock Saving Fund, and the Produce Exchange, New York; the Academy of Music, Brooklyn; Christ Church in St. Louis, and perhaps his most important work, the Temple Emmanuel at Fifth Avenue and Forty-third Street, in his adopted city. This synagogue has been regarded by competent authority as one of the most perfect architectural monuments in this country, combining faultless construction with due regard to the purposes of the edifice and ornamented in an appropriate and symbolical manner. In 1875 the State Capital at Albany, which was begun on an extravagant plan and under false estimates of its cost, was turned over to Mr. Eidlitz to finish. He has since built the Assembly Chamber, the Court of Appeals and the adjoining corridor, the grand staircase and the corridors of the Senate Chamber. It will thus be seen that he not only has a practical knowledge of the subject he considers, but that the result of that knowledge, as exhibited in his artistic works, gives to his words a consideration worthy of careful and studious attention.

Let no one be beguiled by their "love for art" into the idea that this is a leisure-hour volume, "a new art-book," one of the many ephemera emanating from the recent æsthetic craze. On the contrary it is a technical and philosophical treatise to be thoughtfully read, nay more than read, to be thoughtfully studied. In saying this we do not mean for a moment that we agree with all that Mr. Eidlitz says — all his philosophy and all of his conclusions. Far from it. We think a large portion of the text could have been advantageously omitted. These parts have no direct bearing upon the subject-matter of the volume and deal too largely with abstract metaphysics. The work would have been better and more useful without them, but the volume is in the right direction and therefore we cordially welcome it.

The book is divided into three parts, each one treating separately the respective subdivisions set forth in the preface as the object of the volume; but in considering each of these themes, the widest latitude is taken and metaphysical speculation takes the place in many chapters of good practical common-sense suggestions upon the topics considered. Mr. Eidlitz's opening words many of us can secretly take home: "There are men who believe not in God, but they all believe in their own 'common-sense' and 'taste.'" This text applies to the profession as well as to laymen and is the key-note to the entire treatise, and the whole treatise, as far as its practical bearings are concerned, may be said to be deduced from this text. Mr. Eidlitz points out in no equivocal manner how architecture as a science and an art has degenerated by being made to serve this intangible *taste* and to conform to its uncertain *style*. "Think of a man," he says, "pronouncing upon the beauty of anything while he himself wears — a starched shirt-front, a cylindrical hat, mutton-chop whiskers, and pantaloons striped horizontally! In the great cities of Europe sad compounds called plays, without plots, without sentiment, without meaning, are played to full houses for hundreds of

[1] The Nature and Functions of Art, more especially of Architecture, by Leopold Eidlitz, Architect. New York: A. G. Armstrong & Son, 1881. 8vo pp. xxii, 493.

nights in succession, and yet the persons who visit these performances speak with confidence of their taste! Men live in houses built of small hemlock joist nailed together in the most slovenly manner, filled in with thin brick and faced on the outside with a weak lining of sandstone, overtopped with a tin cornice painted in imitation of stone, and insist that they are men of taste! The book-stalls and street corners are crowded with the purchasers of the cheap novel, while the average daily attendance of the great libraries does not exceed a few persons. The literature consumed by the masses is veriest trash, and yet each one who reads it believes himself or herself a man or woman of taste." "We are obtuse enough to boast that we are a people of *taste*, able to distinguish the beautiful from the ugly; yet every year we go into ecstasies over the beauties of the prevailing fashions. We laugh at the unfortunate who lacks the *taste* to change his last year's coat, his superannuated carriage, his unfashionable furniture, etc., all of which awhile ago we extolled to the skies as admirable specimens of human art."

His tone, as may be seen, is not conciliatory, and he is mercilessly severe, but not without a good show of reason, upon building committees who without proper means and opportunity for forming accurate judgments, without prior education or practical knowledge, sit upon monumental plans about which they know nothing, and issue their fiat in favor of this design or that design, upon their immutable taste. "An architect," he says, "who consents to compete — that is, who permits a layman to decide upon the merit of his work, to gauge it, correct it, accept or refuse it — has already given up his position as a professional man." "Consider the man of taste who sits in judgment upon ideas of which he never heard and of their expression in art which he has never studied." It is this state of things, in great part, which has kept architecture from progressing and keeping apace with the times. Yet we can hardly agree with Mr. Eidlitz that "it has been silent since the thirteenth century," as reiterated through many portions of his work. His whole advocacy is for a living order of architecture; an architecture that will reveal its meaning in its works, by its form and construction. And is this not the true aim? "Architecture is a species of language. It tells us as much of Greece as Homer did, and of the middle ages more than has been expressed in literature." Look at the ruins of monuments of the past, ruins from which all original detail has disappeared, or at the foundation of monuments never built or entirely destroyed: they tell the story of the object and purpose of these structures. We know them as temples or theatres, forums, baths or dwellings. Why then should not our buildings tell their story too?

Mr. Eidlitz does not advocate by any means an abandonment of the works of the past, either their methods or their manner; but rather to use them as guides for study as we do in history, philosophy and literature, as well as in painting and sculpture. Of all the bygone orders of architecture, Mr. Eidlitz finds most to approve and recommend in mediæval work, and especially the true Gothic which was developed out of it. He does not, it seems to us, pay that regard to the dignified simplicity and purity of the Greek forms that one would look for from an artist as sensitive as he shows himself to be. His disdain for the so-called Renaissance order of architecture almost loses him his equanimity when mentioning it. He says: "When we examine the dome of St. Peter's at Rome, which must, after all, be considered as the greatest outcome of the Renaissance movement, what do we find? If it had been a problem to build strongly and make that which is strong appear weak, to build a monument of great magnitude and make it look small, to use costly materials and make them look mean, to carve statues and place them where they do not belong, or where by gravity or position they could not possibly abide; if, furthermore, this was to be rendered more confused by tawdry carving, misapplied color and all kinds of unmeaning decoration, that problem is solved in the interior of St. Peter's at Rome." Speaking of the dome, again, he asks, "Is it not an abomination, ruder, more vulgar, unmeaning and unjustifiable than anything ever invented by civilized or uncivilized man?"

From these citations some general idea can be gleaned of the direction taken by Mr. Eidlitz in his teaching, and there can be no question but he is theoretically right in all of his views upon taste, and style, and form, and construction, and decoration. The difficulty is that there are but few men of true genius among us, and it requires a man of genius to develop anything new into life and practical use. Another difficulty in the way at the present era is the all-powerful swaying of public opinion, originating oftentimes in some errant spark, caught up by the press and spread broadcast over the land, without its originator ever once turning to look at and consider the base from which it flew. How few people think for themselves and how many take all their thoughts and views upon public questions and private matters second-hand from the columns of their favorite organ, we need only look among our own acquaintances to answer. Above all this is the case with art! Art is fashionable, and not to be "up in art" is not to be fashionable, and we all recognize, of course, that one might as well be out of the world as out of the fashion. The result is that our newspapers and periodicals teem with dissertations upon this artistic subject and upon that, written in most instances by persons who have taken art up since the fashion came in, and who write with a show of learning and an assumption of authority that would be amusing were it not for the poisonous seeds of superficiality and false knowledge they scatter abroad. Art is a study of a lifetime, and perhaps there is no department of art more difficult to truly master than architecture. The reason for this is simple enough: it consists of so many different elements that its unity is always in danger of being destroyed. Mechanics, material, sculpture and painting all form part of its laboratory, and their relative positions have to be worked together in the crucible of the artist's brain. Yet with these indisputable facts, that hydra-headed monster public opinion, formed in the manner described, is ready to set itself in opposition to the life-long student.

Mr. Eidlitz is no coward in the expression of his convictions, and the keenness with which he first analyzes and then disposes of two writers high in popular estimation — Fergusson and Ruskin — is very amusing and highly to be commended. The third part of his book, that on the *nature of architecture*, and which occupies three-fifths of the entire volume, is by all degrees the most valuable, important and interesting; while the final chapter, on the education of the architect, should be placed in the hands of all concerned in the advancement of this great art. Mr. Eidlitz's book is a notable contribution to the literature of art and bears evidence of a mind practised in the subject treated. As a literary composition it is excellent. His terse, vigorous, pointed English leaves no uncertain meaning to be gathered by the reader, and his excellent choice of illustration clears up any portion that may seem befogged. The volume is clearly and beautifully printed, but lacks an adequate index.

Charles Henry Hart.

THE SEPARATE SYSTEM OF SEWERAGE. — III.

So much smaller sewers will suffice to carry off the sewage only, that their cost need be but a fraction of what would be required to build sewers admitting rain; and by adopting the former many towns can avail themselves of the benefits of sewerage which would otherwise be debarred from it on account of the expense; and in any case the difference in cost will be considerable."

Mr. Clark admits that "the first cost of a system for sewage alone will be much less than that of one admitting rain." He states the case very fairly in comparing the cost of the sewers of Chicago with those of Memphis, and says: "It appears that the first cost of the combined system will be two and one half times that of a separate system not admitting rain." In my own judgment the average difference will be more than this. He thinks, however, that the question of economy depends upon other considerations which he enumerates, some of which are sound and some are not so. As for example, he charges the separate system with "all pecuniary damage caused by lack of prompt removal of the rain-water, especially the damage to street surfaces which would be gullied and washed away in time of rain." Such washing is of rare occurrence and is so seldom experienced, even in Baltimore, where the surface flow is copious and rapid, that an influential portion of the public have long objected to the adoption of a sewerage system for that city because it would deprive them of the efficient cleansing of the streets by storm-water, which they have always found so satisfactory. He does not charge the combined system with the flooding of cellars, and often of streets and yards by overflows, caused by the gorging of the sewers, during storms, nor does he refer to what is much more serious than cost and what often happens, — the flooding of basements and cellars with filthy sewage under such conditions.

"6. Rain-water in excess is seldom worse than inconvenient, and, at most places, can properly be allowed to flow off over the surface of the streets, as it does everywhere before the introduction of sewerage."

I should make this stronger and say that storm-water may be allowed to flow off over the surface of the street *with great advantage* so long as it does not accumulate to a dangerous extent. He says: "It is begging the question to claim that since the rain flowed over the surface everywhere before the introduction of sewerage, it can continue to do so; for the same sort of reasoning would apply to the sewage itself." This is true only if there is no difference between running storm-water and foul sewage through the street gutters. It seems to me a novel view of the subject for a modern sewerage engineer to entertain. He says of rain-water that it is a question how far it can be made to flow in the streets without becoming "too great a nuisance." That is the precise limit to be adopted. My idea would be to keep it in the streets until it does become too great a nuisance, and then to carry it underground. It will be found in practice that the area over which water may be kept on the surface is so great that with proper arrangement the underground storm-water channels will be so much reduced in extent that it is not fair to call them "a second set of sewers," which is a favorite expression of those who argue against the separate system. He refers to the complaint of residents "that the amount of water on the street in time of heavy rain or thaw is a nuisance." But he says that residents are often too exacting in matters concerning their comfort. He does not refer to the

more frequent and much more serious complaint of residents whose houses are near catch-basins, — almost invariably offensive; but he does say: "In the latitude of Massachusetts catch-basins also sometimes freeze up and cause trouble, but this can be prevented, or they can be thawed out with salt."

He refers to the fact that the grading of the surface of streets and the elevation of yards as compared with the streets must be modified if storm-water is to flow over the surface. This is entirely true, and so far as it goes, it is an argument against the separate system of sewerage. It is, however, a putting of the question of the cost of grading and of convenience into opposition with the vital question of the public health.

"7. Where it is absolutely necessary to remove the rain as well as the sewage by means of underground conduits, two sets of sewers can be built, each designed for its special purpose, and the greater efficiency of both will compensate for the slight increase in cost."

In this statement I only object to the expression "two sets of sewers." As stated above, the storm-water sewers would only be main outlets for various districts chiefly drained of their rain-fall by surface flow. Mr. Clarke says: "To build a separate set of sewers for this alone presents no especial difficulty. The sewers must be as large as if intended to convey the sewage also: therefore if they were placed equally low, the cost of a double system would be two-fifths greater than that of a combined one." It would be if the storm-water sewers reached everywhere that the separate sewers do, and as stated if they were placed *equally low*. In practice their length would probably average not more than one-fourth of the length of the small sewers, and as complete drainage of the soil of cellars and of houses would be effected by the pipe sewers and their accompanying tile-drains, the necessary storm-water conduits need be carried only sufficiently under the surface to be out of the way, in many cases three feet deep instead of thirteen feet deep. Constructed on this principle, "the two sets of sewers" could not "interfere with each other as to position, and where they cross each other as to their grades." He says: "The small sewers would lack the periodical flushing by rain-water, and during a very light rain of short duration considerable street-refuse may be carried into the large sewers to remain and decompose until the next shower; but as these sewers would not be connected with the houses, this would cause no danger, and, if they were well ventilated, little annoyance." The Memphis sewers have *no* "periodical flushing by rain-water," but a copious flushing every day by automatic flush-tanks. The street-refuse if carried into combined sewers and remaining to decompose, these sewers *being* connected with the houses, the immunity indicated would not exist.

"8. Where the sewage must be raised by pumping, or treated in any way, these operations can only be satisfactorily accomplished if the sewage is unmixed with rain." Mr. Clarke says that where pumping is resorted to a separate system becomes a necessity. For towns discharging their sewage by gravitation, he indicates the use of intercepting sewers large enough for the dry-weather flow, with independent storm-water overflows. He does not pretend that this is more than a makeshift.

His conclusion is thus stated:

"The result of this discussion appears to show that a separate system of sewerage is only necessary where cellars are so low that they must be drained by pumping; that in other cases its only merit is its cheapness; that the saving in first cost of sewers will be about three-fifths, depending on the character of the soil; that the final economy will depend on circumstances; that the system would only be advisable where the branch sewers could incline not much less than one in one hundred; that surface drainage for rain is attended by a varying amount of inconvenience and damage which increases with the growth of a town."

My own conclusion would be this: The result of this discussion appears to show that a separate system of sewerage is *necessary* where cellars are so low that they must be drained by pumping, and where the cost of a combined system cannot be afforded; that its economy is always very great; that it is entirely efficient with a fall of one in five hundred; that surface-drainage can be prevented from causing inconvenience or damage worth considering, no matter what the size of the town, for an outlay which compared with the extra cost of a system of combined sewers would be trifling; and last and most important, that while combined sewers cannot possibly meet the necessary sanitary requirements, separate sewers can be made absolutely safe, affording the only means now known for the perfect sanitary drainage of a town of any size, and that for these reasons the separate system is always advisable.

George E. Waring, Jr.

THE ILLUSTRATIONS.

"THE OWEN." CAMPEBELLO, N. B. MR. W. G. PRESTON, ARCHITECT, BOSTON, MASS.

SKETCH FOR A COUNTRY HOUSE NEAR PHILADELPHIA, PA. MR. R. G. KENNEDY, ARCHITECT, PHILADELPHIA, PA.

SKETCH FOR ALTERATIONS TO LYMAN ESTATE, WALTHAM, MASS. MESSRS. HARTWELL & RICHARDSON, ARCHITECTS, BOSTON, MASS.

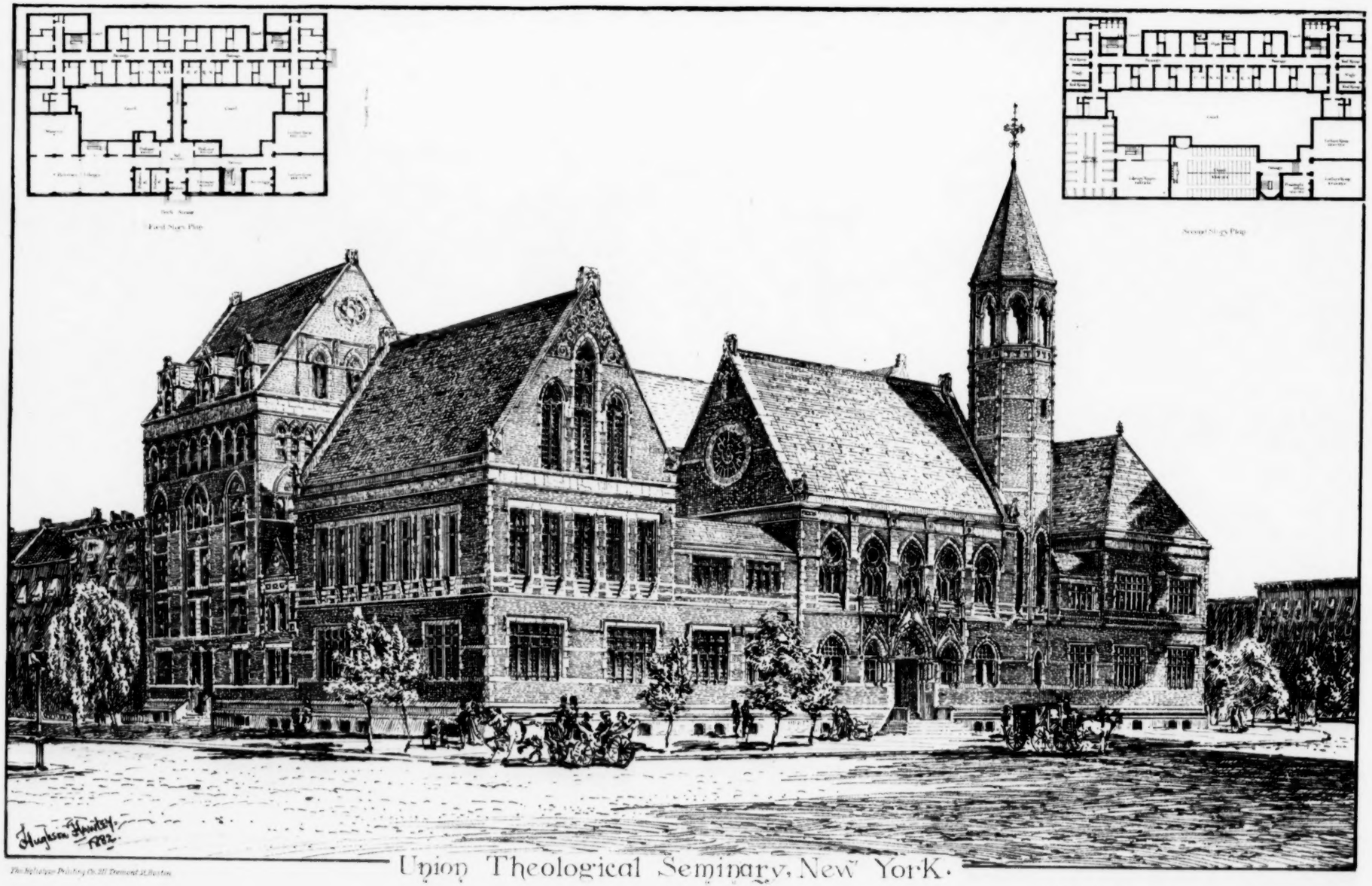
"ASTONFIELD," THE RESIDENCE OF SAMUEL RHOADES, ESQ. MR. A. E. BARLOW, ARCHITECT, NEW YORK, N. Y.

UNION THEOLOGICAL SEMINARY, NEW YORK, N. Y. MESSRS. W. A. PORTER AND J. BROWN, ARCHITECTS, NEW YORK, N. Y.

FIFTY-SEVENTH ANNUAL EXHIBITION OF THE NATIONAL ACADEMY OF DESIGN, NEW YORK.

No one looked for a very brilliant or even a very satisfactory exhibition at the Academy this year; yet many of us hoped for better things than have been granted us. It is hard to say whether the level is higher than it was last year or not. Perhaps there are fewer prominent atrocities; but there are also fewer pictures of strikingly good quality. The vast amount of work that cannot be called bad but that is unoriginal, commonplace, and uninteresting to a degree, leaves a most depressing effect upon the mind. What is it all good for? one asks. Whom does it benefit, and how should we be worse off if none of it existed? Yet such questionings may seem ungrateful, for it was not so long ago when our walls were filled with work that was worse than useless, — that was positively harmful and distressing. Such work one could cry out against with a clear conscience, sure that every observer with eyes in his head would endorse one's verdict, would see the necessity of fixing a higher standard and of praying for a quite new artistic dispensation. But when respectable mediocrity is the text — when one cannot but remember how much training and conscientious effort has gone to the production of these commonplace canvases, and how much enjoyment of a certain unelevated sort they give to a thousand purchasers — the sermon is harder to preach and more likely to meet with a resentful hearing. Yet there is perhaps no stage in artistic culture so dangerous as this of respectable mediocrity: it is so much harder for both our artists and our public to take the step that lies ahead of it than it was to make the step that came before it. If one can merely say that a given class of works has no positive defect save that it lacks the final flavor which makes a work of *art* in the truest sense; if one's objections are negative rather than positive, one's argument is hard to formularize and harder still for those not especially concerned to follow and to endorse. Therefore it is that those of us who hailed not many years ago the very advent on a comprehensible scale of the mediocre attainments, we now regret to see so universally approved, are doubtless accused of unreasonable fickleness in now demanding more. But it was only as a necessary upward step that such achievement was gladly hailed. Now it has become so widespread that the ground should surely be well prepared for a still better growth. I believe, indeed, that it is so prepared and that it now depends upon external causes to produce a finer flower of art. The danger is that the public will remain too well contented with moderate prowess, and that our young artists, who have won the place in public estimation that but recently they seemed in vain to sigh for, will be enervated by success and relax their efforts after higher honors. The day has passed, thank Heaven! when a picture's chance of sale was almost infinitely lessened by the fact that it was the work of an American brush. Up to a certain point — or perhaps I should say up to a certain figure — there is a wide market for home productions. Landscape works of an unassuming sort, —and all pictures, indeed, that are unpretending in character and in price, — find ready purchasers. But the average patron is still unwilling to trust the inspiration of those who would venture upon higher flights. What are known to the trade as "important pictures" figure at the exhibitions — and afterwards in the studio where they were born. And even in work on a small scale, work which makes no unusual demand upon wall-space or pocket-book, daring originality is not encouraged. The effect which such a state of things may have upon our artists, capable though many of them are of noble efforts, cannot be lightly estimated. For it is idle to deny the force of outside influences in moulding a school of art. The most single-minded and enthusiastic artist must live; and he cannot live upon the satisfaction he feels at knowing he has painted a good picture or even upon that which comes from the hearty approval of brother artists and of friendly but impecunious critics. Without these of course he can do no good thing, though the shekels flow in

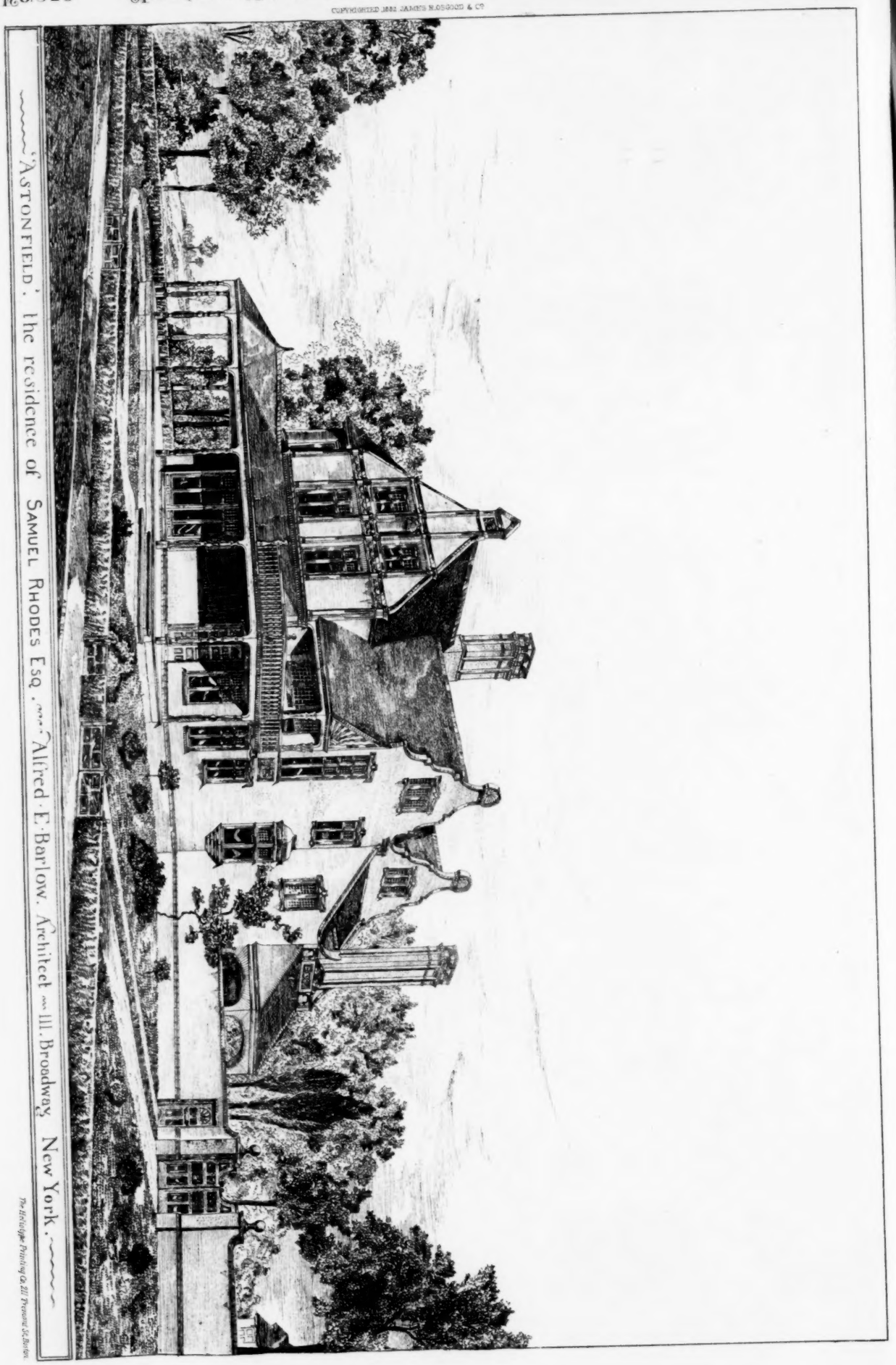
No. 529 American Architect and Building News, Apr. 15, 1882.



Union Theological Seminary, New York.

Wm. A. Potter, James Brown Lord, } Architects.

The Heliotype Printing Co. 211 Tremont St. Boston.



'ASTONFIELD', the residence of SAMUEL RHODES Esq. Alfred E. Barlow, Architect 111 Broadway, New York.

The Heliotype Printing Co. 211 Devonshire St. Boston.

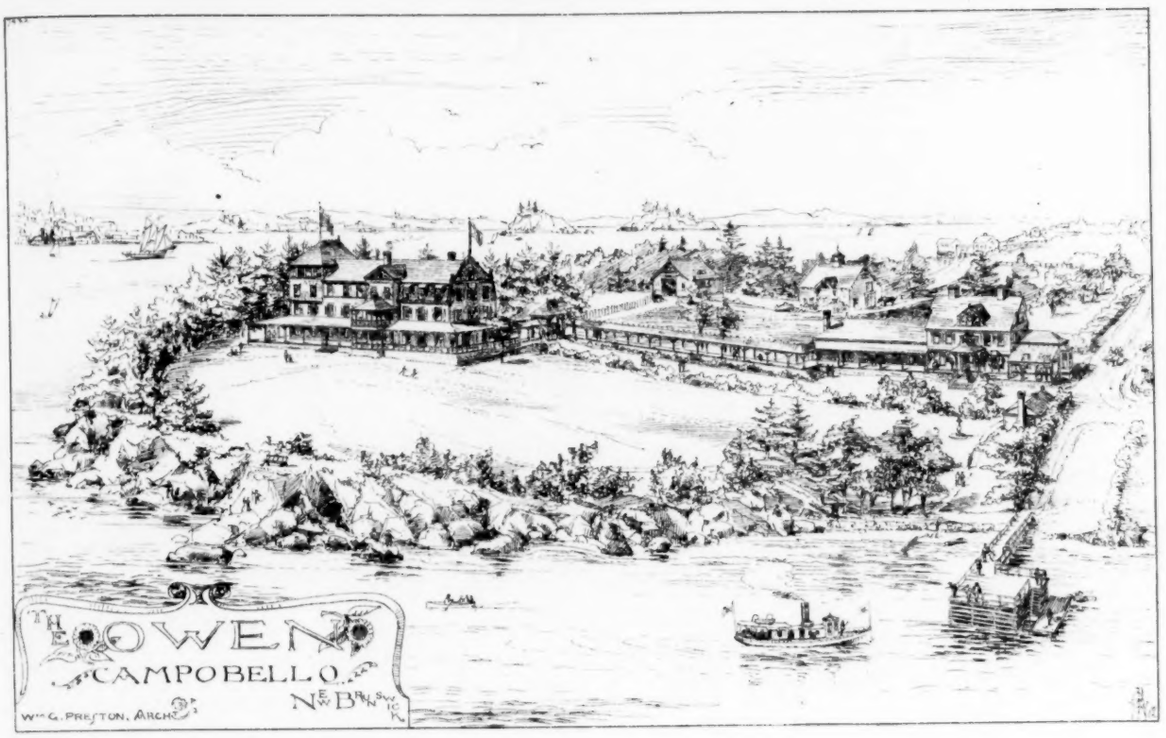
SKETCH FOR ALTERATION AT THE DYMAN ESTATE, WALTHAM.

FRONT ELEVATION.

PLAN.

MAYNARD & RICHARDSON, ARCHITECTS, BOSTON.

The Riverside Printing Co. 211 Devonshire St. Boston.



PROPOSED COUNTRY HOUSE NEAR PHILADELPHIA, PA.

upon him; but with these alone to back him he cannot do his best and will most likely end by doing his very worst. There are few Millets in the world; and his example, indeed, is not likely to be inspiring to a young co-worker, for there is no fact more plainly shown in his biography than the fact that want of public sympathy robbed his genius of a portion of its power and a greater portion of its prolificness. My notice of the Academy seems to be turning into a sermon to the art-patrons of America. But the words may stand; for such a sermon is, I believe, the most necessary that can to-day be preached, one which should be taken up by every lover of art, and reiterated until we show a generous practical appreciation of the strength which now lies half dormant in many an eager young brush, — conscientious and enthusiastic, but necessitous and, possibly, beginning to imbibe self-distrust from the popular distrust around it. Those who have come at all into personal contact with the younger generation of our painters could cite many examples to point my moral — young men who made a brilliant and promising début, but who have fallen behind their first high efforts or who, if those efforts proved a success in the popular eye, have feared to try again in a different way and have therefore gone on repeating the first clear and valuable note with ever weaker and more tiresome iteration. It would not be difficult to mention more than one name among those who could do admirable work, if there were more to think it admirable, but who are on the point of giving up their profession in despair, or who have already given up their ideals and are catering to the popular taste with work below their best capacity. It is easy to say — as we all have said at times — "Why does not so-and-so give us an important picture, thoroughly studied and beautifully worked out, such as those he showed us when he first came back from Europe? Why does he now exhibit mechanical repetitions or paltry pot-boilers?" But if the objector were to visit the studio in question he might find the answer there in the shape of those "important" pictures which were so highly lauded when they appeared, but which no man coveted for his own. And yet Bouguereaus bring ten thousand dollars at auction and a vast inanity signed by a name that is praised the world over by the popular mouth, but which true critics in every country are tired of condemning, can find eager contestants to pay any price for its possession. And "upper-tendom" — more, I try to believe, from long habit than for an actual preference — still gives itself and its wives and daughters over to the untender mercies of such portraitists as Mr. Huntington, and Mr. Hicks, and Mr. Le Clear and Mrs. Loop, though a score of vigorous, skilful and individual young painters stand waiting for the task. There are exceptions to the rule, of course; but it is quite a curious study to look through the portraits at an exhibition if one has some knowledge of what faces are therein portrayed. The bad ones belong to some wealthy citizen or were ordered by some corporation — business, scientific or political. The good ones — and there have been this year a few of quite admirable quality — most often show the features of the painter's wife or sister or of a brother artist, or are "portrait-studies" done for practice and not "commissions." But it is time that I should get to my proper theme. If I have been a little emphatic with regard to a side issue it has been because I find more and more that to know of what our young men are capable one must go behind the exhibition wall, must know the pictures hidden, for years perhaps, in studio corners or only dreamed of in their would-be creator's minds. That such a state of things will long continue I do not fear; but a short continuance will be long enough to blight the best promise of many a strong young hand.

The Academy list is fuller than ever this year. The catalogue shows 838 numbers divided up among the unusually large total of 494 artists. The hanging is as bad as ever, having apparently been arranged on a system of matching frames rather than of considering their contents. Not only are bad pictures and good made to exchange their proper situations, but many of the best have been placed in contact with such as are most nicely calculated to ruin their effect. The portraitists are not in very great strength. The P. N. A. gets worse and worse, more insipid, more mechanical, more lifeless, and more disregarding of every texture as the years go by. Mr. Hicks is not much better, and Mr. Le Clear is worse, for he makes his models look vulgar, which is one fault of which Mr. Huntington cannot be accused. Professor John F. Weir sends a large and interesting group of the six theological professors of Yale College. It is not attractive, for it is so dark in tone that there is little local color and little chiaroscuro to be traced, and the grouping is as bad as may be, but it shows a conscientious effort to grapple with the most difficult and most important problems of portrait-painting. The heads are not very well painted, but they have vitality and character to a certain extent, and the canvas as a whole is not a wooden, perfunctory, mechanical performance like almost all our official portrait-paintings up to the present date, and so it is valuable in spite of its many defects. Mrs. Whitman sends a beautiful portrait of a little child in pink, fine in color, in handling, and in character. It is hung directly over one of Mr. Huntington's, and the contrast between the work that was universal not many years ago and the work that we trust may be all but universal in the very near future, could not be more strongly pointed. The very best portrait on the walls, however, is Mr. Alden Weir's half-length of Mr. George Maynard, skied, unfortunately, to the topmost circle. It is a wonderful piece of painting and a wonderful piece of characterization as well. The same artist's portrait of a lady in gray is very interesting in parts and very good in color, but incomplete, stiff in pose, and below the artist's best accomplishment. In a dark corner of the corridor hangs another picture of Mr. Weir's, which may be counted in among the portraits. It is called the Milkmaid of Papindrecht, and shows the life-size figure of a sturdy Dutch girl standing by her great copper milk-pails. Beautifully painted in a style as accomplished as it is individual, perfect in its tone and color, in the delicately blended grays and blues and dull whites of the costume, strong in expression and admirably alive, there is no better picture in the rooms — only one perhaps which in a very different way is nearly so good. Mr. George Brush shows a good little portrait on a small scale; Mr. George Butler, Jr., a charming half-length of Mr. Vedder's little daughter, a trifle "sweet" in the flesh-painting, perhaps; Mr. Charters Williamson, a very cleverly-painted portrait of a child, which would excite more general admiration were not the costume chosen so particularly ugly; and Mr. Healy several portraits that are as commonplace as ever. Looking at them one is at a loss to understand the rank he obtained some years ago in the estimation of good critics. Such a rank once gained, however, the conservation of his prestige is more easily understood. Miss Emmet's portrait of a child disappoints every one who admired her contributions of last year, but she recovers her ground in some clever figure-pieces of other kinds on a smaller scale. Nor, to turn again to our elder generation, does Mr. Eastman Johnson show anything to compare with his Funding Bill of last season. His portrait of a lady, belonging to Mr. Pullman of Chicago, is well posed and well painted as to the accessories, but it is very weak and bad in the pinkish, unnatural, and disagreeable flesh. Mr. Alexander Harrison sends a clever portrait-study of a young French girl in her "First Communion" dress; Mr. Edward May a clever study of a woman's head; Mr. B. C. Porter a lifeless and mechanical portrait of an original so beautiful that it should have inspired the most prosaic brush; Mr. Vinton his capable and masculine, if not very individual, likeness of Wendell Phillips; Miss Emily Sartan a lady's portrait, fine, though rather too dark in color, and very strong in handling; Mr. Carroll Beckwith one of his clever and striking, but unrefined, female heads, this time placed against a background of brilliant red azalias; and Mr. John Alexander, a quite new comer, two most interesting portraits: one of them is the full-length of a child with a large dog. It is finely conceived and handled and full of the intangible quality called "style," though the drawing is defective in places and the color of an unnatural pallid hue that savors a little of the would-be singular. The same hue is found with even greater emphasis in Mr. Alexander's portrait of Thurlow Weed. Yet it is a striking and an able piece of painting none the less. And then, to conclude, there are the usual number of waxen or wooden figures dubbed in the catalogue with a variety of "ideal" titles.

Among the figure compositions Mr. Thomas Shields's Mozart Singing his Requiem is perhaps the most prominent. It contains much good painting and is not disagreeable in color, but it is badly composed, perfunctory in effect, and without any expression in the individual figures, though the subject demanded such expression to an unusual degree. Mr. Hovenden's large picture showing Elaine at Arthur's court, lying on her bier and surrounded by a crowd of gazing figures, will hardly sustain the reputation he made with his Vendean Volunteers of last season. It shows good drawing and good training in many directions, but is theatrical in the highest degree, and in color and chiaroscuro exceedingly disagreeable. Mr. Volk sounds the same note that he struck so successfully last year in his Puritan Girl standing in the Snow, but, as might have been expected, with far less of force and beauty. Mr. Blashfield sends a clever decorative panel called Music, and a canvas called The People of Boston Watching from the House-tops the Firing at Bunker Hill. This is pleasant though rather pallid in color, but chiefly remarkable for its laudable desire to deal with native material, though it be only of a bygone time. Mr. C. Y. Turner, whose work at the water-color exhibition was so good, has here a fine little canvas with the figures of a Puritan woman and child leaving a country churchyard, and also a large Grand Canal, Dordrecht, with groups of peasants bringing milk in their boats. It is clever and individual in treatment and nice in color, though a little unnatural, perhaps, in lighting. Mr. Bridgman is represented by some Oriental scenes which are very cleverly done, but not of especial interest. Mr. J. G. Brown has several of his typical canvases, with wooden, albeit really expressive, old women, or with porcelain-like and utterly unnatural street-boys; Mr. Kappes a realistic study of an old ragpicker, almost too heart-rending to be tolerable as art, but unmistakably clever; Mr. F. D. Millet two pictures of very differing sorts, but equally uninteresting in their quality; Mr. Newell some clever studies of rustic types; Mr. Vedder an interesting decorative figure of a mediæval maiden weaving; Mr. Edward Moran an out-door scene with girls' figures, an improvement on most of his previous work; and his two sons' attractive pictures. One of the chief pictures of the year is Mr. Gilbert Gaul's Charging the Battery. It is of moderate size and shows a column of Federal infantry running up a slight ascent. The moonlight which illumines the scene is cleverly contrasted with the glare of a bursting bomb in the background. The color and tone are good, the realism of the scene sufficiently yet not distressingly insisted upon, and the lines of the composition, with the impression of movement conveyed thereby, are especially to be commended. There are a few other good figure-pictures, but they have already been described in these columns as present at the Philadelphia exhibition of last autumn. A word

must, however, again be given to Mr. Eakins's Mending the Net, which there was shown. It is the picture to which I have just referred as sharing with Mr. Alden Weir's the honors of the day. While there may be a difference of opinion as to the success of the landscape portion of the work, there can be none with regard to the marvellous frieze of little figures set against the bright blue sky. Nothing in previous art is like them; nothing in any art could be better in its way. An inexhaustible delight to the eye, they are even more valuable as a practical demonstration of the important facts — to which my readers may be tired of having me revert, but which I believe cannot be too often insisted upon — that it is the artist and not his material that makes good art, and that the best art is sure to come from the capable treatment of the things which are most local, most characteristic, and most unhackneyed by previous endeavor. When such pictures as this remain unsold, while Mr. Brown's wooden effigies and Mr. Guy's wooden dolls find constant buyers, the observer needs a certain amount of philosophy and a certain amount of hopeful prophesying to enable him to feel that he need not "despair of the Republic."

In landscape work there is little that is very striking, but the average is better than in other departments. Mr. George Inness, with his indefatigable and astounding versatility, strikes another quite novel note this year. He shows us a ragged New Jersey clearing on a misty winter morning, very delicate and pale, yet beautiful in color, and wonderful in atmosphere and in truth to all the subtilest facts of a difficult theme. No one but Mr. Thayer, I think, has previously painted just this phase of our land and climate with success; and even Mr. Thayer, despite the beauty of his delicate work, does not combine as much of nature with his poetry. Mr. Walter Palmer sends a peculiar and at first sight unnatural view of Venice; but the aspects of Venice are innumerable, and there is so much beauty in this canvas — so much atmosphere and such a wonderful depth of distance — that we are willing to take its word that it is near enough to the truth for all artistic purposes. Mr. Tryon, Mr. Thomas Allen, Mr. Bruce Crane, Mr. Dewey, Mr. Gifford, Mr. Fitler, Mr. Bolton Jones, Mr. Low, Mr. Shurtleff, Mr. Minor, Mr. W. T. Richards, and Mr. Wyant send average works, very different in kind, of course, but none demanding a longer comment here. Mr. Bunce's color-studies are little else, whether the theme be Venice or American hillsides; but in their way and within their limits they are most complete and exquisite. The finest piece of color shown this year, and as fine a one as could well be found from any living brush, I think, is a brilliant bit called, Satucket, New England. Mr. Albert Ryder sends one of his fascinating and poetical landscapes — one which is, however, not among the very best he has produced. Mr. Rudell signs a couple of charming and individual bits; and Mr. Bunker a little green canvas with the figures of a child and a timid lamb, a veritable idyl in its simplicity and original charm. Mr. Donoho's large canvas with the tall tree trunks, first seen in Philadelphia, takes its place as among the few finest things in the rooms; Mr. Poore is represented by a hillside-view in early spring with two or three sheep amid the lingering snow, that is freshly conceived and ably painted: and Mr. Twachtman has a small canvas which though interesting is not of his very best. Among the marine painters we find Mr. Henry Smith, Mr. Quartley, Mr. De Haas and Mr. Dana, — the last with a large moonlight scene showing the frigate "Constitution" chased by British ships. It is very good, but hardly comparable to the splendid Moonlight off the Coast of France we found at Philadelphia. Mr. Carleton Wiggins and Mr. Bispham are present with cattle pieces of absolutely different sorts, but both good in their several ways. And finally a word should be given to two landscapes by Miss C. R. Murdoch. This young lady, who gave every promise of a creditable career, unfortunately died not long ago in France, and these two canvases are all that remain to us of her earnest study and enthusiasm. One shows sheep and children in the fields, and was seen at Philadelphia, where it was called, La Barrière. The other, new to me, is even more attractive. It is called, Spring in a Foreign Land, and gives us an exquisite French landscape with a flock of sheep in the foreground and a couple of children breaking branches from a pink flowering shrub. It is hard to over-rate the delicacy and charm of this canvas, which is not only pictorially valuable and complete, but which has also a decorative value of a sort that it is difficult to introduce into representative art without greatly weakening it thereby. The soft pinks and greens of this picture, however, are not so insisted upon for their decorative effect as to hurt the higher pictorial character of the work.

M. G. van Rensselaer.

The New Fountain of Milan. — E. Paladini has published some notes upon the hydraulic works for the use of the Industrial Exposition and of the new fountain of Milan. The total cost of the works was 80,000 lire ($16,000). The daily supply of the fountain costs nine lire ($1 80). The water is thrown to a height of 27 metres (29.528 yards), with an expenditure of 34 litres of water (8.975 gallons) per second. The effect is quite as striking as that of either of the other great fountains of Europe. The Berna fountain consumes 70 litres per second; the Trafalgar Square, 64; the Stoccarda, 62; the Turin, 50; each of the fountains of the Place de la Concorde, 61; each of the Rond Point, 36; that of the Place Belle Court, 40, and that in the Place du Château, Brussels, 40. — *Il Politecnico.*

THE PENETRATION OF SEWER-GAS INTO DWELLINGS.[1]

From the *British Architect.*

The author states that, since the completion of the new drainage works of Dantzic, he has devoted much attention to the question of house-connections and water-traps. His general conclusion is that too little care is bestowed by the public upon these important matters, and that for various reasons the subject has been neglected. In all cases which have come under his notice the presence of sewer-gas in dwelling-houses has been due to obvious imperfections in the fittings, which were capable of being readily set right when once observed. Much ignorance concerning this subject prevails among all classes.

The author gives the results of ten experiments directed to ascertain the condition under which sewer-gases may gain admission into dwellings, and the methods which may be adopted for their exclusion. He disclaims any attempt at chemical or morphological examination as being incapable in the present state of knowledge of leading to true results.

The following experiments were carried out in the house, No. 25 Heiligergeiststrasse, Dantzic, which was fitted up in entire accordance with the prevailing ideas. The soil-pipe was prolonged and carried up through the roof and received from the first and second floors a sink and a closet on each floor, a closet on the ground floor, and a closet and a sink in the basement. The observations were conducted in the ground-floor closet, and for convenience of access the closet apparatus was removed, together with the water-supply, leaving exposed only the siphon trap (of the form in common use). The diameter of the siphon was 11 centimetres (4.33 inches); the depth of water beneath the dip of the trap — *i. e.*, the minimum height of water to close the trap — was 8 centimetres (3.15 inches); or a total contents of 1,100 cubic centimetres (1.936 pint). In order to fill the siphon to the overflow level an additional level of depth of 1.5 centimetre (0.59 inch) was required, bringing up the total volume of water in the bend of the siphon to 1,450 cubic centimetres (2,553 pints). The actual water-seal was thus 1.5 centimetre (0.59 inch) in depth. In the first experiment the trap was completely emptied with a siphon, and observations of the air currents were taken by means of a lighted wax taper, placed at the bottom of the trap. The direction of the flame readily indicated the nature of the current, the general direction being towards the soil-pipe, showing that the sewer was sucking air. When water was poured into the soil-pipe on the upper floors the flame was violently agitated and sometimes blown out. Water was then poured into the trap so as just to fill it to the full height of the seal, and colored black in order that it might be better observed. Frequent measurements were taken of the liquid in the trap (three or four times daily) for five days, during which time the water seal was diminished by suction into the soil-pipe and evaporation to a level of — 0.2 (—0.078 inch) showing the seal to have become broken.[2] But on the first day, ten hours after the beginning of the experiments, air had forced up the blackened water over the top of the trap, the seal having become reduced to 0.7 centimetre (0.27 inch). Among the general conclusions from this set of experiments the author states that a seal of 1.5 centimetre had after a five or ten hours' use become insufficient for its purpose. In the second experiment a more complex trap was employed, with a seal of 30 centimetres (1.31 foot). This apparatus became, under certain conditions an annular siphon,[3] and completely emptied the trap in a few seconds. The result of this experiment went to prove that the sudden emptying of a bucket of water on the upper floors produced such a compression in the lower part of the soil-pipe as to correspond with a manometrical rise of from 1 centimetre to 2 centimetres (0.39 inch to 0.78 inch). The third set of experiments were carried out with another apparatus, and directed specially to ascertain and measure the small fluctuations in the pressure of the gases in the soil-pipe. Arrangements were made to keep the water in the trap at a uniform level (*i. e.*, to restore all water drawn through the trap) by means of a double siphon connected with a store vessel containing a measured quantity of water. This store bottle the author names the "Restitutor." The result of this set of experiments proved that the water in the trap could easily be automatically main-

[1] By Dr. Lissauer, of Dantzic. From "Deutsche Vierteljahrschrift für öffentliche Gesundheitspflege," for Abstracts of Institution of Civil Engineers, published in *Van Nostrand's Engineering Magazine.*

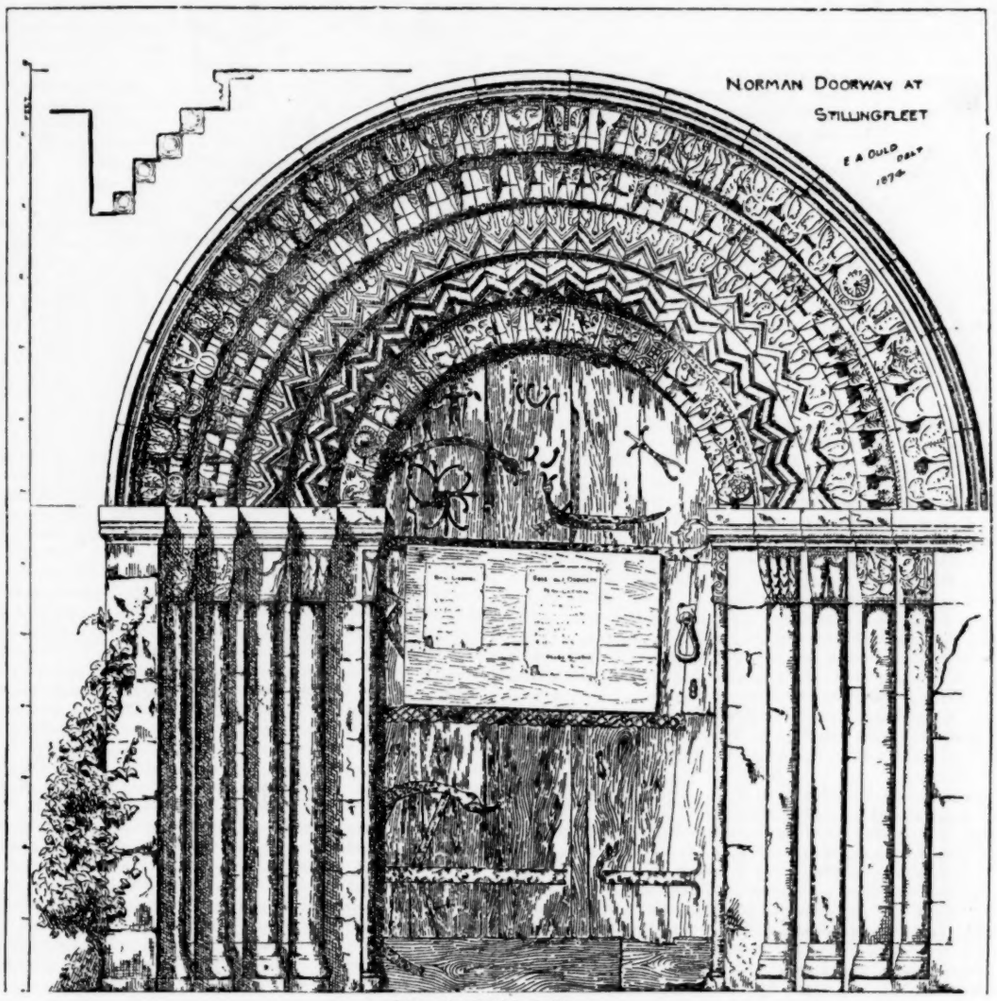
[2] That is, below the level of the dip of the siphon.

[3] By the same action as has been observed in Field's annular siphon and flush-tank.

tained at one uniform level by a simple siphon apparatus. Further, that the suction down the soil-pipe is such that on all ordinary occasions it represents a rise of from 0.1 centimetre to 0.2 centimetre (1.039 inch to 0.078 inch) in a manometer. On very stormy days this difference may at times rise to 0.6 centimetre (0.234 inch). The outward pressure from the soil-pipe into the house caused by the use of the upper closets may correspond with a column of water from 1.6 centimetre to 2.2 centimetres (0.63 inch to 0.87 inch) in height.

In the fourth set of experiments a siphon trap was employed which had its front formed of glass, so that the height of the water on each side of the dip could be accurately observed, and measured by millimetric scales fixed in either limb of the inverted siphon. The water employed was a soda solution, and strips of turmeric paper were suspended to show the height to which the water was blown up in the passage of gases through the seal. The depth of the seal was at first 2.5 centimetres (0.98 inch). Numerous tests were made of the seal by throwing down buckets of water in the upper closets, etc. This set of experiments proved that the utmost pressure of the gases did not exceed that of a column of water 2 centimetres (0.78 inch) in height. A seal of 2.5 centimetres (0.98 inch) was capable of resisting all pressure of gases in the soil-pipe for five days, while the closets throughout the house were in ordinary use, and only gave way on the sixth day, when the seal had been reduced to 1.3 centimetre (0.51 inch). Nine buckets of water rapidly thrown down in the upper closets sufficed to break a seal of 2.5 centimetres.

The fifth experiment was conducted at 37, Jopengasse, with a similar apparatus to the last, but with a seal of 3 centimetres (1.18 inch). In this case an opening of 3 centimetres was made in the siphon so as to afford direct ventilation into the open air, and thus provide an escape for the confined gases other than by forcing the seal. By this means the pressure was so reduced that the utmost movement of the water in the trap was reduced to from 1 millimetre to 2 millimetres (0.039 inch to 0.078 inch). The sixth set of experiments was conducted with a sink-trap, containing only 250 cubic centimetres (0.44 pint), and which required fifty-two days to become wholly exhausted; though in one week the level had fallen from 4.4 centimetres (1.74 inch) to 3.1 centimetres (1.21 inch), and in eighteen days to 2.6 centimetres (1.02 inch). In the seventh set of observations a perforation was made in this trap to ventilate it, and sundry experiments with large volumes of water thrown down the closet were carried out. In the eighth set of experiments the water used in the trap was spring water, to see whether the absorption of sewer-gas had anything to do with the rapidity with which the seal was forced. The result proved that *cæteris paribus* a trap was able to resist the passage of sewer-gas the longer the water it contained required for its saturation with the gases. The next experiment was directed to prove the reverse of this axiom, and water saturated with carbonic-acid gas was employed. In this case, after five buckets of water had been thrown down the soil-pipe, the trap was forced; while it had required nineteen buckets of water to force a trap containing an equal volume of clear spring water. The tenth and last set of experiments were made on the same small sink-trap, but provided with a "restitutor," as in No. 3; and it was found that this apparatus enabled the water in this trap to be kept automatically at any required level.



(From the *British Architect*

The author next gives ten instances of faulty house-connections and cases of illness connected therewith, and finishes with the recommendation that all domestic sanitary arrangements and apparatus should be placed under the control and subject to the inspection of the local authority. He advises the employment of a separate ventilating-pipe along-side the soil-pipe, carried up above the roof and placed in free communication with the open air, into which pipe all the traps are to be ventilated by openings, not less than 3 centimetres (1.18 inch) in diameter, situated between the water-seal and the soil-pipe. He speaks of the English system of disconnection at the foot of the soil-pipe as unknown to him by practical experience, and as of little use in Dantzic, where the street sewers are so formed as to suck air (which is in itself a protection to the houses), and where pressure of gases, tending to force their way into dwellings, only occurs at intervals in the form of gusts (*stossweise*). He concludes by stating that in all new dwellings the authorities of Dantzic have made compulsory the plan he advocates of direct ventilation of the siphon trap.

THE PANTHEON.

AT the back of the Pantheon there passes a narrow street called the Via della Palombella, well known to all who have lingered in Rome, though few may remember its name. It was the direct route from the Corso to the Falcone, the celebrated *trattoria* in the Piazza San Eustachio, where one used to go in the old Café Greco days, some fifteen years ago, to eat game of all kinds and especially wild boar, woodcock, porcupine, and tortoise, cooked *alla casareccia*, according to the then unchanged traditions of the Roman kitchen. It was celebrated for its dingy old wine-shops, where delicious Aleatico, Montepulciano, and Orvieto, now obtainable no longer, were served to you at fifteen *bajocchi* (7½*d.*) the flask. At the corner nearest the Piazza della Minerva stood Bianchi's shop, now being pulled down, where few English ladies failed to make purchases of Roman scarfs. From Bianchi's shop to the further corner extended a range of lofty, neglected-looking edifices, built without the slightest attempt at design, and devoid of ornament or plastering. The small cobweb-hung windows seemed to have been placed anywhere at random. The doorways, as irregularly built, looked as if no one had entered them for years, but among them was one by which, when the Tiber was out, strangers, after much time spent in finding it, passed through the sacristy of the Pantheon to see the weird effect of the dome reflected in the waters covering the floor. It would have puzzled any one to say for what purposes those edifices were constructed, but then there are, or at least there were, so many buildings in Rome which might equally well be taken for fortresses, prisons, or convents, and were neither of the three, that nobody stopped to think what those in the Via della Palombella might be. In fact, they were bakeries and flour warehouses, which were arbitrarily built against the mole of the Pantheon a century or two ago, and have formed the text for volumes of erudition on the rights of the sovereign over the ancient public edifices, both sacred and profane. The pleadings in support of the claims of the owners by right of mere possession, and of the Crown, or rather the Tiara, by right of sovereignty, went on for years. Learned counsel on the one side expressed their surprise that the eminent Cardinal on the other should, "in the immense verbosity of his forensic erudition," be ignorant of such or such a fact, but no unappealable decision for the removal of these incumbrances was obtained until recently, when the question of right was abandoned, and expropriation for purposes of public utility, with estimated compensation to the owners, was decreed in homage to the general expression of public opinion that the Pantheon, where rest the remains of Victor Emmanuel, should be isolated.

The works were commenced in July last. The whole of the Pantheon side of the Via della Palombella has been demolished. The accumulation of ages on which the pavement of that street rests, at between seventeen and eighteen feet higher than the Piazza of the Pantheon — which was cleared by Alexander VII in 1662 — has been cut through and excavated down to the original level, a grand hall and a series of chambers which formed part of the Thermæ of Agrippa have been discovered, and on the side of the street still untouched a crowd of Romans of the nineteenth century, with many strangers among them, stand gazing in wonder upon the marble pavement below, on which their ancestors walked two thousand years ago — the very slabs the divine Augustus and his great minister and general have trodden — and lying upon it just as they fell, colossal masses of the white-marble cornice and great fragments of the splendid fluted columns of the golden-yellow marble of Numidia which adorned the Baths. At the back of the Pantheon a complete transformation scene has been worked, for instead of the circular mole being isolated by the demolition of the modern buildings, as was generally expected, it was quickly found that the unsightly frontage of the side of the Via della Palombella I have described was little more than a mask covering the gigantic remains of the Thermæ, and now, in place of a line of ugly, shapeless edifices, we see a range of lofty walls and chambers of the Augustan age, which, built against and shut out from view, had been utilized as bakeries and flour warehouses and forgotten by every one but the very few acquainted with the records of the hidden vestiges of the ancient city. These records — descriptive and designed — exist chiefly in the works of the writers, painters, and architects of the sixteenth and seventeenth centuries; but, partly because they are not easily understood and partly because they do not square with more modern theories and criticisms, they are set aside as being at least untrustworthy. Such confirmation do the excavations now in progress at the Pantheon give to the plans of the Thermæ of Agrippa drawn by Palladio more than three hundred years ago, and reference to these plans by those who may be interested in the subject of this letter will make my description clear.

The great feature in the discoveries thus far made is a grand hall, exceeding in length the full diameter of the interior of the Pantheon, behind which it is situate on a line parallel to the portico of that building. Its direction corresponds so exactly to that of the Via della Palombella, lying immediately above it, as to lead one to conclude that in the days when Rome had become almost depopulated and half buried in her own ruins this hall was made a thoroughfare, until finally, through its walls, together with the contiguous chambers I have mentioned, being adapted to modern uses by the building of meaner edifices within and against them, it became the Via della Palombella of the modern city. Indeed, a glance at Palladio's plan will show how convenient this hall, with its great entrances at each end opening onto the level of the platform where it stood in front of the Thermæ, which it connected with the Pantheon, was for such a purpose; moreover, in the partial reproduction of Palladio's plan in Fea's pamphlet, "Dei Deritti del Principato sugli antichi Edifizi" (Rome, 1806), the situation of the modern buildings and streets, indicated in mezzotint, shows that the end of the Via della Palombella, which opens from the Piazza della Minerva, corresponds exactly not only in situation, but in width, to the eastern entrance. Every detail of this splendid hall is laid down with scrupulous exactness in Palladio's plan. It measures 148 feet in length, by — judging from the plan, for only one of the longer sides has yet been excavated — about 50 feet in width. It was adorned with eight splendid fluted columns of Phrygian and Numidian marbles, like those of the Pantheon, one in each corner and two on each of the longer sides. At the middle of the northern side — that excavated — is a great semicircular niche or apse, 29′ 2″ in diameter, situate exactly back to back to the principal niche in the Pantheon, that facing the entrance, and in front of which the high altar now stands. The back or convex sides of the walls of these great niches, like the twin apsides of the double Temple of Venus at Rome, almost touch, there being no more than a free space of 4′ 4″ between them. Built within and against the wall of the great niche in the hall now discovered are the remains of a massive pedestal, large enough for a colossal group of sculpture or an equestrian statue. It measures 12′ 8″ x 11′ 7″, and must have been about six feet in height, and in the walls on each side of the great niche there are, at about ten feet from the floor, three other ordinary sized niches, one with a semicircular and two with rectangular tops, for life-sized statues.

I have termed this chief feature of the discoveries made a hall, but judging from its position on the plan, its projecting to the extent of its width from the frontage of the Thermæ, its entrances at each end wide enough for a street in which two carriages can conveniently pass each other, opening to the east and to the west onto the level of the low platform on which the Thermæ stood, and the fact that an opening on the middle of the side not yet excavated formed the central doorway into the principal chambers of the Thermæ, it may more probably have been a vestibule like that of St. Peter's, with which it corresponds in form, with the difference only that, because of the Pantheon connected with it on the north, it was entered from the ends instead of from the front. If this supposition be correct, one may very reasonably conclude that the celebrated bronze athlete with the strigil — the Apoxyomenos — which Agrippa brought from Greece and placed in the portico of his warm baths, and of which a fine marble copy, found in 1849, is now in the Braccio Nuovo of the Vatican Museum, stood in one of these smaller niches. The pavement of this vestibule, as I shall now call it, is formed of large slabs, measuring 6′ 10″ x 3′ 10″, of beautiful "Africano" and other colored marbles, for the most part in very perfect condition, but the marble panels with which there are clear indications that the walls were covered have all disappeared, with the exception of a few vestiges here and there close to the floor. The marble bases of the columns which supported the vaulted ceiling are all in their places, though much damaged. Of the coffered vaulting a portion is lying on the floor. Of the columns six great fragments, varying from four to ten feet in length, have been found. They measure 10′ 6″ in circumference, or one foot less than those in the Pantheon. Aloft, in one corner, are some massive vestiges of the white-marble cornice, with the great fragments of which — many of them measuring 8′ to 10′ in length by from 3′ to 5′ in depth — the flooring laid bare is incumbered throughout. The design of this cornice is the same as that of the portico of the Pantheon, but somewhat less ornate. The details are marvels of architectural carving. The chief features of the cornice proper are a bold and deeply undercut egg-and-tongue moulding, 7 inches in depth, with, under it, a bead and oval moulding, and then dentils measuring 7″ x 5″. The frieze, which is 2′ 6½″ deep, is ornamented with dolphins with upright tridents between them and acanthus plants alternately in bas relief, beautifully carved, and the architrave below is formed of simple broad fasciæ, the depth of the cornice, frieze, and architrave together being 8′ 4½″.

The lofty walls I have mentioned as having been revealed when the modern frontage of the Pantheon side of the Via della Palombella was demolished form, from one point of view, the most important portion of the discoveries made, inasmuch as they afford conclusive proof not only that the Pantheon was an integral part of the Baths of Agrippa, but that the Pantheon, the vestibule I have described, and those walls which, so to say, tie the two together were built from their foundations at one and the same time. The construction of the splendid *opus latericium*, is identical throughout. I have measured the bricks in many places and found them everywhere six and

a half to the foot. I may best describe the situation of these walls, which are eight in number, as so many straight parallel lines drawn at right angles from the straight north wall of the vestibule to the back of the Pantheon, and which, if continued on through the Pantheon, would be parallel to its major axis. These walls — which are 3 feet 10 inches in thickness, excepting the two middle ones, (situated on each side of the semicircular projections, as the great niches of the Pantheon and the vestibule appear when standing behind and between them), which are no less than 10 feet 7 inches thick — form the sides, as the walls of the Pantheon and the vestibule respectively do the ends, of a series of two-storied vaulted chambers, each 14 feet 8 inches in width — excepting the central space where the backs of the two great niches nearly touch — and increasing in length as the circular wall of the Pantheon spreads away on the one side and the other from the straight wall of the vestibule. These chambers are paved with large slabs of travertine; a series of doorways connect them with each other, but there is nothing to indicate what they were used for. That they were used is, however, evident from the fact that some of the longer ones are divided by walls across them into smaller rooms, with their threshold stones in their places in the doorways, at about a foot above the general level. Moreover, at the Pantheon end of each of the two rooms situated on the one side and the other of the central space there is what I may call a doorway, 3 feet 5 inches in width by 5 feet in depth, constructed in the wall of the Pantheon itself, and each of these opens onto the diameter line of a semicircular recess, measuring 15 feet across, corresponding directly behind the great recesses in the Pantheon on the right and the left of the principal apse. What purpose these were constructed to serve I shall not for the present attempt to conjecture, but I may mention the curious coincidence that the excavations now being made in the Laconicum of the Baths of Caracalla afford conclusive evidence that the Pantheon — though afterward, and, perhaps, almost immediately, adapted, for reasons unknown to us, to the worship of Jove the Avenger and all the gods — was originally nothing more nor less than the hot-air bath-chamber of the Thermæ of Agrippa. — *Correspondence of the London Times.*

"TRAVELLING EXPENSES." — FULL PROFESSIONAL SERVICE.

Savannah, Ga., March 29, 1882.

To the Editors of the American Architect: —

Gentlemen, — I am greatly obliged for your reply to my communication of the 6th signed "C" in your issue of the 18th inst., but I shall have to trespass upon your time and patience again, as the enclosed letter from my client will show.

Employed some two years ago by him to design and superintend the building of a church, I prepared full and complete drawings, details and specifications, besides paying such visits during progress of the work as I thought necessary, over and above those in which I was especially sent for by my client.

The superintendent made several copies of my drawings and specifications for the use of the various workmen, and probably details of his own besides. From this fact my client contends that I did not render full professional services, and wishes to settle upon a basis of 3½ per cent instead of 5 which I sent in a bill for.

But as you see he begs me to refer to you, and expresses his willingness to abide by your decision in the premises if I am. I, of course have no objection, and hence inclose you as much of his letter as refers especially to the difference between us. C.

March 27, 1882.

Dear Sir, — Your letter of the 21st was duly received, but sickness has prevented me from answering it before.

The letter of the *American Architect* certainly settles the question about travelling expenses, but the real question which was in my mind, his letter does not touch, namely, what does full professional service including superintendence mean? Full professional services must mean more than "preliminary studies, general drawings, details and specifications, and superintendence," for the "including superintendence" is put in brackets.

I confess the schedule is somewhat of a mystery to me and I presume was intended to be deciphered by architects who understand the custom. That you may judge of my mystification I need only mention the paragraphs marked, are the following. "For full professional services (including superintendence) 5 per cent." This is marked with an arrow. "For preliminary studies, general drawings, details and specifications, 3½ per cent." This is marked with pointer and cross. I supposed special reference was called to this item. "For works that cost less than $5,000, or for monumental and decorative [this word underscored] work, and designs for furniture — a special rate in excess of the above." This item marked with an arrow-head. "For alterations and additions — an additional charge to be made for surveys and measurements." This is marked with a pointer. "Necessary travelling expenses to be paid by the client." This is marked with a pointer and a cross. "Time spent by architect in visiting for professional consultation, and in the accompanying travel, whether by day or night, will be charged for, whether or not any commission, either for office work or superintending work is given." This is also marked with a pointer and a cross. "If any material or work used in the construction of the building be already upon the ground, or come into possession of the owner without expense to him, the value of said material or work is to be added to the sum total actually expended upon the building before the architect's commission is computed." This is marked with an arrow-head. From the fact the article of preliminary studies, etc., being marked the same as the one about necessary travelling expenses, I supposed they went together. There are seven articles marked, three marked in one way and three in another. One I do not comprehend at all. From the marking I supposed they went together. . . .

[The schedule of the Royal Institute of British Architects, which is the basis of those used in this country, says: —

"All of the following requirements for buildings are included in the ordinary charge of five per cent: —

"Preliminary sketches.

"Working drawings and specification sufficient for an estimate and contract.

"Detailed drawings and instructions for execution.

"General superintendence of works (exclusive of Clerk of Works).

"Examining and passing the accounts (exclusive of measuring and making out extras and omissions)."

The schedule adds: "An architect is bound, under the five per cent charge, to provide one set of drawings and one set of tracings, with duplicate specification; it being understood that the architect is paid for the *use* only of the drawings and specification, and that they remain the property of the architect:" and also, "No additional remuneration is due for making such a rough estimate as may be obtained, for instance, by cubing out the contents. If a detailed estimate be framed, additional remuneration is due from the employer."

The schedule of the American Institute of Architects does not give any such details regarding the "duties of the architect," but in their absence the English schedule is the next best authority, and it conforms with the general practice in this country. — Eds. American Architect.]

THE CONDITIONS OF FELLOWSHIP, A. I. A.

San Francisco, March 26, 1882.

To the Editors of the American Architect: —

As a matter of information the writer would respectfully ask if applicants for membership in the A. I. A. are not required to have certain qualifications and submit certain original drawings, etc., and if the members recently admitted from this city were so qualified and met such requirements? Respectfully yours, Wm. F. Smith.

[There is at present no examination for entrance into the American Institute of Architects, although it is to be hoped that the example of the British Institute in this matter may before long be imitated here. There is a rule that candidates must submit to the Trustees working drawings of some executed work, but this requirement may be, and often is, dispensed with in cases where it would cause inconvenience. — Eds. American Architect.]

NOTES AND CLIPPINGS.

Anecdote of Sir John Sloane. — His (Wightwick's) remarks about Sir John Soane, the architect, were very characteristic. He was a highly nervous, I should think, rather affected person; he could not abide truisms or commonplaces, and if any one made the common English challenge to conversation of "a fine day," he would either deny it flatly or remark, "Evidently the sun is shining and the sky is blue: there cannot be a question on the subject." When Wightwick first went there he sent up his card, and soon followed it in person. Feeling nervous at being in the real presence of so great a man, he knew not how to begin, so said, "My name is Wightwick, Sir," to be rebuffed by the reply, "Sir, I have your card: I see perfectly what your name is."—*Memories of Old Friends—Caroline Fox.*

Pile-Driving by Electricity. — The successful application of electricity in new fields of labor continues to be recorded. At Hatfield Park, the seat of the Marquis of Salisbury, the piles to support a coffer dam across the River Lea have just been successfully driven by the power of a water-wheel situated at a distance, which power was transmitted by two dynamo machines to the gearing connected with the pile-driver, of ordinary construction, erected on a barge floating in the river. The machinery worked well, lifting a monkey weighing about four hundred-weight with ease and regularity. It is not stated how far the power was transmitted. By a French experiment M. Deprez has succeeded in obtaining useful work after the current had passed through forty-nine miles of ordinary telegraph wire.

Cement. — Some useful results obtained by German experimenters on the behavior of cement under different conditions are given in the current volume of *Dingler's Polytechniches Journal*, p. 1088. According to Herr Schumann, all cements, if allowed to harden in water, increase in volume, the largest increase taking place during the first period of setting. The increase is larger with newly-prepared cement, smaller with finely-ground cement. The addition of gypsum also increases it, while the admixture of sand diminishes it. Building stones were likewise found by Schumann to expand in water, and contract again on being dried in air. The greater the porosify of the stone the smaller is the increase in volume. These changes are, however, in his opinion, too slight to interfere with present practice in building operations. With regard to the behavior of concrete under heat, Herr Feege finds that it can be exposed to a temperature of 130 degrees to 150 degrees Cent. without injuring its supporting strength. At higher temperatures, however, it loses firmness and becomes brittle. An important fact bearing on the preparation of mortar was elicited by Schumann's experiments. He found that all cements, whether used as fine or coarse powder, or burnt slightly or strongly, give the same yield of mortar, and therefore recommends weighing the quantity of cement instead of measuring it as is usually the case. We should add that Herr Delbruck objects to preparing concrete under water, and holds that all excavations should be kept as dry as possible during the actual process of concreting. Herren Busing and Dyckerhoff, on the other hand, strongly recommend concreting in water, and cite many large undertakings in which it has been successfully effected.

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.]

255,773. Curtain-Bracket. — Horatio C. Clement, Albany, Ore.

255,783. Flue-Cap for Stove-Pipes. — Frederick E. Heinig, Louisville, Ky.

255,787. Planing-Machine for Planing Thin Pieces of Wood. — Wallace S. Holland, Burlington, Vt.

255,788. Door. — George W. Howell, Covington, Ky.

255,789. Paint-Burner. — Jos. Irving, Chicago, Ill.

255,809. Hinge. — Charles Pfauntz and Henry Franck, St. Louis, Mo.

255,816. Screw. — Charles D. Rogers, Providence, R. I.

255,836. Stove-Pipe Retainer. — Alfred O. Briggs, Columbia City, Ind.

255,848. Window-Shutter. — Caleb E. Garey, New York, N. Y.

255,853. Wrench. — John C. Gunn, Knoxville, Tenn.

255,868. Opera-Chair. — Sidney N. Johnson and Augustus M. De Souchet, Indianapolis, Ind.

255,881. Faucet. — David Morrison, New York, N. Y.

255,884. Method of Measuring Heat supplied from Steam. — Eugene F. Osborne, St. Paul, Minn.

255,893. Door-Check. — William E. Sparks, New Britain, Conn.

255,895. Cold-Air Machine. — Henry F. Starbuck, Chicago, Ill.

255,914. Faucet. — Louis Bergen, New York, N. Y.

255,918. Faucet for Regulating the Overflow from Basins. — Francis A. Bishop, San Francisco, Cal.

255,933. Water-Closet. — William Bunting, Jr., Boston, Mass.

255,936. Artificial Stone. — George W. Chamberlin and Andrew S. Comerer, Sterling, Ill.

255,938. Spring-Hinge. — Charles B. Clark, Philadelphia, Pa.

255,956. Safety Device for Hoisting-Apparatus. — A. C. Elithorpe, Chicago, Ill.

255,972. Mould for Making Tubular Bricks. — Adam Hahn, Keystone Junction, Pa.

255,975. Water-Closet. — Thomas Hanson, New York, N. Y.

255,991-992. Manufacture of Artificial Stone. — William H. Hoopes, Baltimore, Md.

256,004. Fire-Escape. — Joseph Kellner, Jersey City, N. J.

256,013. Automatic Safety-Brake for Elevators. — Christopher S. Longstreet, New York, N. Y.

256,021. Ventilator for Buildings. — John McDonough, Philadelphia, Pa.

256,045. Door-Check. — Israel P. Poulson, Greenfield, Ind.

256,062. Calipers. — Edward C. Smith, Brooklyn, N. Y.

256,083. Metal Roofing-Plate. — John Walter, Nashville, Tenn.

256,089. Heating-Apparatus. — Napoleon W. Williams, Philadelphia, Pa.

256,099. Pneumatic Elevator. — Chas. E. Buell, New Haven, Conn.

SUMMARY OF THE WEEK.

Baltimore.

Orphanage. — Christ Church Orphanage, North and Second Sts., 40′ x 80′, three-st'y and basement, brick and brownstone finish; Mr. Jno. J. Brown, builder; Messrs. Wyatt & Sperry, architects.

Car-House, etc. — Union Passenger Railway, car-house and stable, cor. Huntingdon Ave. and Oak St., 97′ x 202′, brick, one-st'y, to contain waiting and conductors' rooms, etc., and have capacity for 25 cars and 150 horses; Mr. E. F. Baldwin, architect.

Warehouses. — Mr. Chas. Markell, 2 five-st'y basement warehouses, on lot 52′ x 78′, Lombard St., e of Charles St. Main floor fronts to be of iron; balance of fronts pressed brick with bluestone and terra-cotta finish; cost, $25,000; Messrs. Hopkins & Marshall, builders; Mr. Thos. Dixon, architect.

Building Permits. — Since our last report twenty-seven permits have been granted, of which the following are the more important: —

E. L. Feldhaus, three-st'y brick building, No. 170 Mulberry St., bet. Pearl and Pine Sts.

Eastern Shore Steamboat Co., two-st'y brick building, foot of South St.

Orchard St. M. P. Church, brick church building, n w cor. Orchard St. and Elder Alley.

Jacob Heuster, three-st'y brick building, n w cor. Alicanna St. and Rose Alley.

John Mebring, 2 three-st'y brick buildings, Fulton Ave., n of Lanvale St.

Wm. McLaughlin, 10 two-st'y brick buildings, Light St., commencing at n e cor. Wells St.

Samuel H. Tagart, three-st'y brick building, n e cor. Lombard and Carey Sts.

Jacob Wahl, 3 three-st'y brick buildings, Jackson Square Ave., between Regester St. and Broadway.

J. S. Tucker, 15 three-st'y brick buildings, Mount St., between Mosher St. and Lafayette Ave.

W. M. Gesford, 4 two-st'y brick buildings, Vincent Alley, s of Lanvale St.

Abbott Land Company, 12 two-st'y brick buildings, Elliott St., between Canton Ave. and Hare St.

W. E. Hooper, four-st'y brick building, Wolf St., between Thomas and Fell Sts.

Robt. M. Denison, four-st'y brick building, 46′ x 83′, s e cor. East Falls Ave. and Pratt St., and one-st'y brick building, Pratt St., adjoining.

Boston.

Building Permits. — *Brick.* — *Summer St., Nos.* 169-171 *and* 173, Ward 12, for Samuel S. Constance, mercantile, 45′ 7″ x 74′ 9′, five-st'y; James Smith, builder.

N St., Nos. 141 *and* 143, Ward 14, for Henry B. Stratton, 2 dwells., 20′ x 33′, three-st'y; Henry B. Stratton, builder.

Chestnut Hill Ave., rear of, near Englewood Ave., Ward 25, for D. White, poultry-house, 10′ x 100′; D. White, builder.

Newburg St., Nos. 262-264 *and* 266, Ward 11, for Silas W. Merrill, 3 dwells., 22′ x 56′, three-st'y and mansard; Silas W. Merrill, builder.

Commonwealth Ave., No. 177, Ward 11, for John Quincy Adams, dwell., 27′ x 81′, four-st'y and mansard; Webster & Dixon, builders.

Wood. — Waverley St., near Western Ave., Ward 25, for Valentine Eckert, dwell., 22′ x 30′, two-st'y.

Regent St., near Hurlbert St., Ward 21, for Michael Kelly, dwell., 25′ 2″ x 38′ 2″, two-st'y mansard; Jas. W. Lord, builder.

Albion St., near Clifton St., Ward 20, for Andrew F. McDermott, dwell., 24′ 2′ x 32′ 2″; ell, 18′ 8″ x 20′ 6″, two st'y.

River St., near Central St., Ward 24, for Daniel D. Scott, blacksmith shop, 24′ x 30′; ell, 12′ x 20′.

Centre Pl., Ward 23, for Chas. Perkins, dwell., 19′ x 28′, two-st'y; Wm. L. Sumner, builder.

West Sixth St., No. 128, Ward 13, for Patrick Brady, dwell., 20′ x 30′ three-st'y.

Avon St., rear, near Pond St., Ward 23, for James Glynn, stable, 32′ x 32′. Joseph P. Straw, builder.

Lincoln St., near Rutherford Ave., Ward 4, for T. B. Morrill, 2 dwells., 23 4″ x 30′, three-st'y; Angus McInness, builder.

Lincoln St., cor. Rutherford Ave., Ward 4, for T. B. Morrill, dwell., 20′ and 28′ x 30′, three-st'y; Angus McInness, builder.

River View St., near Huntoon St., Ward 24, for Geo. H. Cavanagh, dwell., two-st'y; Geo. H. Cavanagh, builder.

Rockview St., cor. Green St., Ward 23, for Elizabeth C. Keller, dwell., 40′ x 49′; ell, 4′ 4″ x 20′ 6″, two-st'y; John D. Wester, builder.

West Cottage St., nearly opposite Woodville Sq., Ward 20, dwell. for Henry L. Clapp, 30′ and 35′ x 35′; Herman Drake, builder.

Edgewood St., No. 49, Ward 2, for Bernard Foley, dwell., 21′ x 30′; ell, 20′ x 21′, two-st'y; Henry J. Bartlett, builder.

Edgewood St., No. 47, dwell., 20′ x 30′, two-st'y; Henry J. Bartlett, builder.

Sewall Pl., near Temple St., Ward 4, for C. W. Wellington, 2 dwells., 18′ x 27′, two-st'y; C. W. Wellington, builder.

East Fourth St., cor. P St., Ward 14, for Rev. J. J. Williams, hall, 50′ x 90′; Eugene Sullivan, builder.

Cambridge St., near Harvard Ave., Ward 25, for John W. Hollis, 2 dwells., 20′ x 36′, three-st'y hip; J. A. Berry, builder.

Brooklyn.

Church. — Plans were filed at the Department of Buildings for another Catholic church to be erected in Montrose Ave., bet. Graham Ave. and Ewen St., on a site 88′ x 172′, and to cost $100,000.

Building Permits. — *Scheimerhorn St., No.* 129, n s, 63′ w Smith St., three-st'y brownstone flat; cost, $6,500; owner, Geo. H. Messinger, 356 Henry St.; architect, W. B. Frankey; builder, John W. Neeley.

Fulton St., n s, 160′ w Bedford Ave., 4 four-st'y brownstone flats; cost, $13,000 each; owner and builder, Albert Wilkinson, 333 Macon St.

Lincoln Pl., s s, 384′ e Seventh Ave., three-st'y brick dwell.; cost, $10,000; owner and architect, J. S. Suydam, 136 Carroll St.; builders, E. P. Crane and Perkins & Green.

Bergen St., n s, 196′ 6″ e Vanderbilt Ave., three-st'y brick tenement; cost, $4,000; owner, Peter Keyes; architect, James J. Keyes; builder, John Say.

Greene Ave., n s, 115′ e Franklin Ave., 6 three-st'y brownstone dwells.; cost, $8,000; owner and carpenter, J. H. Townsend, 60 Putnam Ave.

Atlantic Ave., s e cor. Columbia Pl. and Atlantic Ave., s s, extending from Prescott Pl. to Bancroft Pl., 26 two-st'y and basement frame dwells.; cost, $1,800 each; owner, Samuel S. Barrie, 938 Fulton St.; architect, B. T. Robbins; builder, C. P. Skelton.

Ainslie St., n s, about 200′ e Union Ave., three-st'y frame tenement; cost, $5,000; owner, Mr. Doods, Ainslie St.; architect, Fred. Weber; builders, P. Newman and J. J. Randall.

Manhattan Ave., w s, 50′ s Commercial St., three-st'y frame store and dwell.; cost, $3,500; owner, Charles Sebath, 611 Manhattan Ave.; architect, Fred. Weber; builders, James Rooney and Andrew J. Thile.

Boerum Pl., w s, abt. 50′ n Atlantic Ave., four-st'y brick store and tenement; cost, $10,500; owner, E. S. Auchmuty; builders, H. D. & W. A. Southard.

Maujer St., n s, 50′ e Waterbury St., three-st'y frame store and tenement; cost, $4,500; owner,— Humes, Maujer St.; builders, Chris. Buckheit and A. Amann.

North Second St., s s, abt. 100′ w Tenth St., rear, three-st'y brick shoe factory; owner, Mrs. Fransis Glisch; architect, F. F. Gaylor; builders, Matthew Smith and Henry Tietjen.

Harrison Ave., s e cor. Lynch St., three-st'y frame store and tenement; cost, $6,000; owner, Alois Harbich, Graham Ave., cor. Scholes St.; architect, Th. Engelhardt; builders, Wm. Dafeldecker and Jas. Frisse.

Atlantic Ave., n s, 180′ w New York Ave., two-st'y brick stable; cost, $3,000; owner, J. R. Wood; builders, W. Flewin and J. Dunn.

Broadway, w s, 31′ 5″ s Park Ave.; 5 three-st'y frame stores and tenements; cost, $5,500 each, owner and carpenter, George Loeffler, 82 Tompkins Ave.

Powers St., Nos. 253 *and* 255, n s, 75′ e Judge St., 2 three-st'y frame tenements; cost, $4,000 each; owner, M. Paulers, 255 Powers St.; architect, Geo. Hillenbrand; builders, Wm. Bayer and M. Metzen.

Chicago.

Houses. — On Maple St., near State St., 2 dwells., of brick, granite and terra-cotta, for Hon. E. B. Washburne, 48′ x 78′; cost, $20,000; L. G. Hallberg, architect.

On Warren Ave., near Hoyne St., 2 houses of brick and stone finish, 27′ x 60′ each, one for Rev. H. W. Thomas, D. D., the other for Mr. McCourtie; cost, about $9,000 each.

On Ellis Ave., near Thirty-eighth St., a fine residence, 25′ x 70′, to cost $8,000; Mr. W. H. Drake, architect.

Flats. — On Ellis Ave., near Thirty-fifth St., first-class apartment-houses, six apartments, for Mr. E. Morrison, 66′ x 66′, of brick and stone; cost, $25,000.

On South Park Ave., near Thirty-fifth St., 2 three-st'y flats, 24′ x 70′ each; cost, $14,000; Mr. W. H. Drake, architect.

On Seeley Ave. and Madison, two-st'y flats, 27′ x 65′; cost, $6,500; for Mr. John West. Also at same place, two-st'y flat, 24′ x 60′, for Mr. Thos Bent; cost, $4,500; Mr. J. W. Ackermann, architect.

Factory. — On Indiana and Market Sts., a factory, for Mr. Daniel Tubino, four-st'y and basement, 25′ x 100′; cost, $15,000; Mr. J. W. Ackermann, architect.

Building Permits. — L. Kucera, two-st'y dwell., 22′ x 56′, 726 Loomis St.; cost, $4,000.

M. Vaneeck, two-st'y dwell., 22′ x 56′, 86 Johnson St.; cost, $5,000.

A. Klines, three-st'y dwell. and store, 20′ x 56′, 437 Jefferson St.; cost, $5,000.

E. Aaronshaw, three-st'y flats, 30′ x 74′, 362 Ontario St.; cost, $20,000.

D. M. Schell, three-st'y store and dwell., 25′ x 39′, 230 State St.; cost, $3,000.

C. A. Winship, three-st'y and cellar flats, 22′ x 62′, 271 Huron St.; cost, $10,000.

L. L. Coburn, one-st'y store, 26′ x 110′, on Wabash Ave.; cost, $3,500.

C. W. Marks, four-st'y store, 25′ x 90′, 5 East Washington St.; cost, $4,000.

Jos. Kadic, two-st'y addition to dwell., 21′ x 40′, 72 Bunker St.; cost, $2,500.

John R. Dyson, two-st'y flats, 20′ x 40′, 23 Artisian Ave.; cost, $3,000.

H. Kasch, 2 two-st'y stores and dwells., 48′ x 75′, Twenty-first St. and Hayne Ave.; cost, $9,000.

F. R. Hilger, two-st'y store, 46′ x 110′, Wabash and Adams Sts.; cost, $7,000.

G. Spencer, two-st'y dwell., 20′ x 40′, 298 Webster Ave.; cost, $3,500.

S. O. Egan, two-st'y dwell. and barn, 32′ x 74′, Dearborn and North Aves.; cost, $20,000.

H. H. Shufeldt, two-st'y dwell., 38′ x 72′, Dearborn and North Ave.; cost, $25,000.

Mrs. M. A. Estey, 2 three-st'y dwells., 40′ x 45′, State and Schiller Sts.; cost, $9,000.

John Novatue, two-st'y store and dwell., 24′ x 100′, s w cor. Throop and Eighteenth St.; cost, $7,400.

Levi Rosenfeldt, four-st'y stores and flats, 90′ x 150′, Washington and Halsted Sts.; cost, $90,000.

Cincinnati.

Strike. — The plasterers are out on a strike for $3.50 per day. About 150 men have quit work.

Building Laws. — The Builders' Exchange have appointed a committee to prepare a code of building laws to govern the erection of buildings in this city.

Morgue. — A tax levy of $10,000 for building a morgue has been assessed.

Building Permits. — Permits have been issued since our last report as follows: —

Chas. Urterhauser, two-st'y brick dwell., Vine St., near Charlton; cost, $3,500.

H. E. Sterns, three-st'y brick dwell., 412 West Ninth St.; cost, $7,000.

Cincinnati Baptist Church, s e cor. Dayton and Whitman Sts.; cost, $3,000.

B. Gutman, two-st'y brick dwell., 393 West Ninth St.; cost, $8,000.

Gambrinus Stock Co., brick stable, on Hunt St., near Broadway; cost, $5,000.

S. Richards, two st'y frame dwell., McMillan St., near Kenton St.; cost, $2,500.

11 permits for repairs; cost, $3,000.

Total permits to date, 180.

Total cost to date, $456,200.

Kansas City, Mo.

Building Permits. — Ernest Zerhenter, No. 910 McGee St., two-st'y brick dwell., 34′ x 54′; cost, $3,000.

W. Y. Carlton, No. 1220 Penn St., two-st'y brick dwell., 20′ x 30′; cost, $2,500.

Robert Anderson, No. 1215 Penn St., two-st'y brick dwell., 21′ x 55′; cost, $3,000.

H. Tobenor & Co., n e cor. Fifteenth and McGee Sts., repairs; cost, $3,500.

I. D. Clapp, on Grand Ave., one-st'y brick dwell., 25′ x 80′; cost, $3,000.

P. E. Emery, on Wyandotte St., two-st'y brick dwell., 42′ x 54′; cost, $5,500.

L. S. Mark, on Fourteenth St., two-st'y frame dwell., 16′ x 40′; cost, $5,400.

W. S. Brown, on Lydia Ave., two-st'y frame dwell., 22′ x 43; cost, $2,500.

E. F. Roden, on Walnut St., two st'y brick dwell., 40′ x 65′; cost, $6,000.

J. H. Worth, on Lydia Ave., two-st'y frame dwell., 24′ x 45′; cost, $6,000.

Louisville, Ky.

Building Permits. — The following building permits have been issued since last report: —

W. H. Bowling, brick store; cost, $10,000; C. J. Clark, architect.

J. M. Steinle, brick store; cost, $3,000.

The John N. Norton Memorial Infirmary, brick infirmary; cost $3,300; C. J. Clarke, architect.

Hale & Bro., brick dwell.; cost, $5,500.

Fred. Forcht, frame dwell.; cost, $2,350.

Peasley, Gaulbert & Co., brick warehouse; cost, $4,500.