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THE Architectural Department of the Massachusetts Institute of Technology has suffered a great loss in the resignation of Professor William R. Ware, who has been at its head from the beginning, and has taken the principal part in the work of bringing it from the condition of a doubtful experiment to its present usefulness and success. It is gratifying to know that Professor Ware only leaves the Institute to enter upon a field of equal or greater usefulness in a similar station in New York, so that his influence, which has been so widely felt throughout the profession in the United States, will still continue to be exercised; but the circumstances will be changed, and the change will be reflected in a hundred different offices for years to come. It is not too much to say that the establishment of the Architectural Department at the Institute of Technology in Boston was the most important event in the history of American architecture. Even those young in the profession can bear witness to the change which has rapidly taken place in the character of offices since the first class in architecture graduated from the Institute, ten years ago. At that time the *personnel* of most well-conducted establishments consisted in the chief, with whom were associated one or two confidential subordinates, sometimes well and systematically trained, but more often simply intelligent and ambitious, and under them a greater or less number of draughtsmen, mostly foreigners, skilful in their way, but mere *routiniers*, with as little care for their art as for the advancement of the master's interest. Now this is all changed; the foreigners are still to be seen, but the prevailing character of all good offices is given by a certain number of young, well-bred, and thoughtful men, whose zeal for their profession, far from vanishing as soon as the clock strikes five, or the master's back is turned, finds expression in all sorts of associations for mutual improvement, in eager discussions of interesting designs, or new points of practice, and in friendly rivalry and sympathy. Of course, only a few of these are graduates of the Boston school, or of the others which have in one or two places begun to emulate its good work, but few as they are, they set the fashion for all the others. Two of Professor Ware's pupils, for instance, employed in neighboring offices in some distant city, find nothing so natural as to go sketching together early in the morning, or to try their hand at competitions in the evenings, or join some class for drawing, either from life or the round. Their enthusiasm attracts notice among their fellows, and presently imitation; rival offices set up sketching clubs, and test each other's strength in the rendering of stated programmes; and the more ambitious of those not specially trained surpass themselves in the endeavor to vie with their more fortunate fellows. A more promising state of affairs for the future of the art can hardly be conceived, and the school through whose agency this has been principally accomplished well deserves to prosper, as it has, through the credit which its pupils reflect upon it. It is a matter for sincere congratulation that another one so thoroughly appointed should be established in New York under the same care and experience which has elsewhere had so great a share in forming the minds of the next generation of architects; but half of the good which it can accomplish will be lost if it should be the means of obscuring the reputation or discouraging the

efforts of the present school, and thus destroying that mutual rivalry from which each has to hope so much, and the profession still more.

At the annual meeting of the Royal Institute of British Architects, held May 4, Professor George Edmund Street, R. A., was elected President of the Institute by a majority of four votes over the candidate nominated by the Council, Mr. Horace Jones. The contest has excited great interest, but the result seems to be satisfactory as well to those who considered that loyalty to the by-laws and the constituted authority required them to support the official candidate as to the others, who frankly avowed their preferences, and voted accordingly. The *Building News*, in a calm and able editorial, while acknowledging that a good thing has been done, not, perhaps, in the best possible way, pays a high tribute to the eminence of the new President both in his professional work and as a writer of unsurpassed depth, dignity and force upon matters of architecture; saying that he brings to the Institute more reputation than he receives from it, and predicting that if seconded by the other members who possess influence in the profession, his Presidency will do much to extend its usefulness and authority. It complains, with reason, of the lack of interest in the proceedings of the Institute shown by many of the most prominent members, and hopes that Professor Street will attract about him the ablest of those who, if they could once be brought to share his high ideal of professional duty and accomplishment, might easily advance their art to a position which it has never yet held. It would be well for the members of all architectural societies to take to heart this suggestion, and to remember that the chief value of such associations lies in the means which they afford for combining a great mass of individual opinion and co-operation, which cannot be replaced by the devotion of a few energetic men; that every member has a part to fulfil, which he cannot neglect or abandon to others more willing, without injustice to them and injury to himself and his society; and that there is no circumstance of ordinary duty which brings such sure and quick reward as a ready and intelligent co-operation in the larger interests of the profession.

AMONG the interesting objects included in the Electrical Exhibition to be held in Paris next August, *Le Génie Civil* mentions a miniature electric railway, which will occupy the whole south gallery of the building, and is intended not for passengers, but as a substitute for the pneumatic despatch machinery now employed in most large cities. There will also be, of course, telephones in every variety, for communication between the different portions of the building, as well as with the city outside. Two small rooms are to be furnished with telephone receivers communicating with transmitters placed near the stage of the Grand Opera, and two others will be similarly connected with the Théâtre Français. It is said by those who witnessed the preliminary experiments that not only the voices of the singers and actors are perfectly heard through the instrument, but even the footsteps of the dancers and the whisper of the prompter. In the centre of the great hall is to be placed a light-house lantern of the first class, contributed by the Ministry of Public Works, standing in a basin of water, with artificial cascades illuminated by special lights of their own. Outside the building an electric railway of full size will convey passengers at stated intervals from the Place de la Concorde to the Exhibition Building. As might be supposed, one of the most difficult tasks of the Administration was to harmonize the different systems of lighting intended to be shown, and assign them their due place in the whole effect. This has been done by allotting each variety of lamp a single slice, so to speak, of the building, containing a single separate room, as well as a portion of the open nave, so that while in the nave all kinds will be seen side by side. Each patentee will also be able to show the effect of his light by itself, secured from the interference of others.

A NEW and distinct variety of telephone has been invented by Professor Dolbear of Tufts College, an electrician of high reputation. This differs from those hitherto used by dispensing with the electro-magnet, the alternate attraction and release of the elastic membrane by which the sonorous vibrations are produced depending simply on the tendency which one terminal of an open circuit has to approach the other when both are

charged. The receiver contains two diaphragms, held at the proper distance apart by means of an adjusting screw, and each forming one pole of the secondary circuit of an induction coil. The transmitter is connected with the primary circuit of the coil, and the variations in the electrical state of this are reproduced by vibrations in the diaphragm-poles of the secondary circuit. One of the diaphragms is fixed, the other only being movable; and instead of both wires of the circuit being brought to the instrument, one can be replaced by an earth connection. The new system is said to have the advantage that when worked with an induction coil of high resistance, adventitious influences do not have the same effect in confusing the articulation as in the case of the magneto-telephone, and the instrument may be successfully used in spite of an interposed resistance equivalent to that of five thousand miles of ordinary telegraph-wire. If this claim should be fulfilled, the usefulness of the telephone will be immensely extended. It has been estimated that the actual force of the vibrations in the receiver, with an ordinary telephone, is not much more than a thousandth part of the impulse at the transmitter, and improvements in this respect may be as confidently looked for as they will be eagerly adopted for general use.

THE fifteenth annual meeting of the National Board of Fire Underwriters was held in New York last week. From the brief abstract of its proceedings given in the daily papers we gather some interesting statistics, which seem to indicate a slight improvement in insurance business during the past year. According to the report of the Committee on Statistics, two hundred and ninety-three companies received in 1880, in round numbers, sixty-two million dollars in fire premiums, and eight million for marine and inland insurance, an increase of eleven million over the preceding year, while the fire losses amounted to thirty-three and one-half millions, and the inland and marine losses to five and three-quarters millions. The other expenses of the business amounted to thirty-four and one-quarter millions, yet the returns show a profit to the companies of seven and one-half millions. As the sum of losses and expenses is three and a half million dollars greater than the total of premiums received, it is not easy to see from what source this profit was derived, but it may have been from the income of invested capital. If so, the exhibit is still far from encouraging to the stockholders.

SOME interesting statistics are given in a recent number of the New York *Herald* in regard to the business done by the elevated railroads and the surface lines last year, as compared with the traffic during 1877, when the elevated roads had hardly commenced operation. In the latter year the whole number of passengers carried by the street-car companies whose tracks run north and south was in round numbers ninety-eight million, while the stage lines carried sixteen million more. In 1880 the elevated roads were in full use, carrying fifty-two million passengers, while the surface lines of cars, instead of losing an equivalent amount of business, carried eighty-two million, and the stage traffic actually increased by about twenty-five per cent, the whole number of persons using that mode of conveyance being twenty million. The total north and south travel by all public conveyances was then in 1877 represented by one hundred and fourteen million passengers, and in 1880 by one hundred and fifty-four million, a gain of more than thirty-five per cent. If to this were added the business of the "cross town" lines, which has greatly increased since the elevated railroads went into operation, the result would probably indicate a gain of nearly fifty per cent in the aggregate number of persons carried, and fares paid, within the short space of three years. A more striking illustration of the principle to which we have had occasion to refer, that every added facility of transportation increases the total amount of travelling done by a community of a given size, it would be hard to find.

As epidemic of monument-building seems to have broken out in various parts of the country, and before another decade is over the taste of the present generation of Americans will be embodied for the instruction, or amusement, of posterity in a large number of permanent structures. Besides the great Yorktown memorial, the most important of these enterprises, monuments are to be erected at Buffalo, at Zanesville, at the birthplace of Washington, at Bennington and at Saratoga, besides the single statues which are rapidly multiplying in the large cities. Of these, the Washington statue in New York will be

one of the most conspicuous, although rivalled in this respect by that of Leif Ericsson, which is to stand either in the Post Office Square, or opposite the Art Museum, in Boston. In Fall River, a small public monument has just been dedicated to the memory of Henry Sevey, the correspondent of the *Providence Journal* who was killed by the fall of an elevator in the Borden Block some months ago, and a statue of Colonel Prescott is to be unveiled at Bunker Hill, June 17. Among the Hudson Highlands, in a strikingly appropriate position on a small island near Newburgh, and just under the shadow of Storm King, is to be erected a monument to Hendrik Hudson, the discoverer of the river which bears his name; and at Titusville, Pennsylvania, it is intended to raise a memorial of Colonel Drake, who first found petroleum in America. A proposition has also been made to commemorate the recent accident at London, Ontario, in some similar manner, but the committee very sensibly preferred to use any money that might come into their hands in relieving the wants of those rendered destitute by the catastrophe.

DOCTOR LENZ, an Austrian explorer, has just returned from an interesting and important tour through Western Africa, extending from Tangier over the Atlas Mountains, across the Great Desert to Timbuctoo, and thence to the French settlements of Senegambia. The recent expedition of Colonel Flatters, the pioneer of the Saharan Railroad, which met with so sad a fate, adds a peculiar interest to the successful exploration of nearly the same route, independent of the fact that not more than one white man in a generation has visited Timbuctoo and returned alive. Dr. Lenz departed from Tangier, opposite Gibraltar, in December, 1879, traversing first the comparatively civilized, though little-known country of Morocco, in which he observed many Roman remains, particularly one magnificent triumphal arch still standing in the ancient city of Volubilis. On leaving Morocco, it was no longer safe to travel undisguised, and he assumed the character of a Turkish physician, dispensing anodynes by day, and avoiding further responsibility by travelling at night. In this way he crossed the mighty chain of Atlas, whose summits rival in height those of the Alps, and descended into the desert, near its western border, traversing it almost in a straight line to Timbuctoo. This famous city he found much declined from its former greatness. Not more than twenty thousand persons now inhabit it, although it is still the centre of traffic for half the continent. Between Timbuctoo and the sea-coast the expedition travelled through a rich and fertile country, infested with rapacious chieftains, who levied merciless tribute upon it as the price of safe-conduct, and arrived safely at the French port of Saint-Louis, at the mouth of the river Senegal, in November, 1880, eleven months from the date of departure from Tangier. Dr. Lenz very naturally took some pains to satisfy himself as to the encouragement which was offered by the character of the region through which he passed to the project of a trans-Saharan railroad, but his opinion is decidedly unfavorable. Not only do the natural obstacles, the great cost, and the hostility of the natives offer formidable reasons against the undertaking, but there is no prospect of any remunerative traffic for the road, even if built, and there is little likelihood of a change in this respect during the present generation.

WE take pleasure in giving publicity to an invitation issued by Mr. Chas. W. Church, of Fort Hamilton, King's County, N. Y., to "School Architects," soliciting from "architects of experience in that branch of the business" designs for a public school-house, to accommodate at least two hundred pupils, and to cost about six thousand dollars. With unusual frankness, the authorities having in charge the erection of this sumptuous structure announce that "no compensation will be paid for any designs unless specifically agreed to by the Building Committee." Lest they should be overwhelmed with applications from "experienced school architects" to be allowed to compete on these liberal terms, it is further stipulated that all communications must enclose a "stamp for answer." This last provision is, however, perhaps discreetly devised, not in the interest of economy merely, but for the purpose of making a selection among the applicants, drawing the line, as it were, between the superior class, whose members can command a three-cent stamp at will, and the mass of school architects, who would be debarred by this restriction from engaging the attention of the committee, and we commend this prudent example to the imitation of similar bodies.

CIVIC MONUMENTS IN NEW ENGLAND.¹—II.

THE equestrian statue of Washington (Fig. 11), in the Public Garden, by Thomas Ball, is the most important and best specimen of monumental decoration in New England. It makes a fine general im-



Fig. 11. George Washington. By Thomas Ball.

In the Public Garden, Boston.

pression. When the task of making an equestrian statue, twenty-two feet high, in this country a quarter of a century ago, with none of the



Fig. 12. Marcus Aurelius. Greek Work, in Rome.

facilities enjoyed by the sculptors of the Old World, is considered, the result is all that could be asked. From the moment of its unveiling it

¹ It has been found desirable to enlarge and develop the scheme upon which these articles were based. Intended originally to treat only of Boston statues, they have been extended so as to take in some of the more important monuments in the neighborhood of that city. Moreover, it has been found desirable to supplement the illustrations of these statues and monuments by others which serve to show what the master-hands of foreign artists have done when striving to embody similar ideas and sentiments: they may be considered, in fact, among the writer's strongest arguments in support of the criticism and analysis he has undertaken to make. — EDS. AMERICAN ARCHITECT.

became an object of public honor. No one can say that the sculptor was not equal to his time, place and circumstance. Few do more.



Fig. 13. Colleoni Monument, at Venice. By Andrea Verrochio.

At this time more would be expected. Were such equestrian statues as the Marcus Aurelius at Rome (Fig. 12), the Colleoni at Venice (Fig. 13), or the Greek bas-reliefs, placed beside the Washington, it would be seen that these representations of another civilization had a oneness of purpose, a sense of nature, and a perfection of workmanship, in keeping with the ages of art, activity, and force in which they were made, and which could not be expected at this or any previous time in this country.



Fig. 14. Filiberto. By Marochetti. Turin, Italy.

of how Washington might look at any peaceful moment while riding in his soldier's costume. The horse has a certain person-

The design of the Washington does not assume to either represent him in any given moment of his military career, or any precise phase of his military character. Like Chantrey's statue, it is composed, — that is, it is the fancy of the sculptor

ality; the ears being thrown forward, the eyes and action of the head indicating that he is attracted by some object. This personality is an essential quality in a composition like this. The statue has been criticised because it was not positively identified with some act, event, or characteristic of the man, or time in which he



Fig. 15. Richard Cœur de Lion. By Marochetti. In London.

lived. It is argued with abundant proof that an equestrian statue, like an epic poem, should first of all ring out the vital activities of history, no matter if rudely done; that a fancied composition, without identification with a great purpose, moment, or event, is



Fig. 16. Charles Sumner. By Thomas Ball. In the Public Garden, Boston.



Fig. 17. Mirabeau. By Truphème. At Aix, France.

unworthy of the scheme of an equestrian statue; that it should indicate its day as well as a principle of all days. It is this quality that gives the chief value to ancient equestrian statues. It is said that the rider does not sit well, that though the horse is intended to move, he has no motion; that the action of the hand holding the bridle is not worthy of its occupation, and that the action of the right hand is too frivolous. Whatever may be said against this statue from the standpoint of the great equestrian statues of the world, it is certain that as time goes on, and the circumstances surrounding its production are fully understood, it will lose neither interest nor admiration.

On the south side of the Public Garden stands the bronze statue of Charles Sumner (Fig. 16), also by Thomas Ball. It is difficult to believe that the intelligence and courage that made the Washington were active in the production of this bronze. It is a favorite proverb that an artist is necessarily in advance of his time. Public condemnation has been very severe against the Sumner.



Fig. 18. Marshal Ney. By Rude. At Paris, France.



Fig. 19. Edward Everett. By W. W. Story. In the Public Garden, Boston.

On the north side of the Garden is the bronze Everett (Fig. 19), by W. W. Story. This statue has also had its day of contumely. The peculiarity of its design has given it a national notoriety. It has one positively attained purpose, that of representing the great orator in the position and movement he desired. He is in the act of speaking, and gives emphasis to his words with his whole figure,

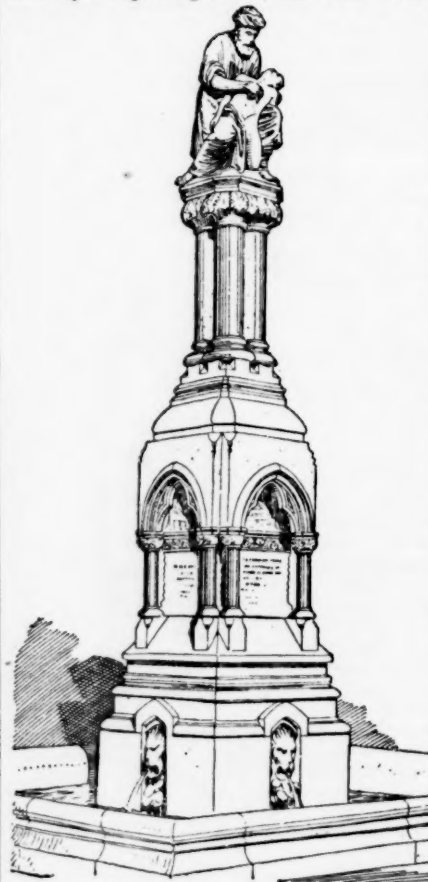


Fig. 20. The Ether Monument. By J. Q. A. Ward. In the Public Garden, Boston.

especially with his right arm, which is fully extended up into the air. The position is a perfectly warrantable one, though dangerous and rarely attempted by the ablest sculptors. It is the only portrait statue in Boston that has a defined and undistracted intention as the basis and structure of its composition, and had it been executed with the graceful elegance of Chantrey's Washington, the undemonstrative refinement of Greenough's Franklin, or the proud vigor of Rude's Marshal Ney (Fig. 18), every one would crown it, and the sneers of the public would be turned into smiles. It is thoroughly studied, far more than any of its companion statues, but its execution is dry and thin. The observer cannot fail to notice the attention paid to the movement of the body, legs and drapery, not only as facts, but with reference to principles and their relations. It is symmetrical without beauty, harmonious without style. It is bald, hard work, not fine nor vigorous art.

The Ether Monument (Fig. 20) also adorns the Public Garden. It is very interesting because of the motive that brought it into existence, and the unique and agreeable character of its design. The following inscription tells the story of its origin and purpose: "To commemorate the discovery that the inhaling of ether causes insensibility to pain. First proved to the world at the Massachusetts General Hospital in Boston, October, A.D., 1846." The monument consists of a tall, elaborate Gothic pedestal, surmounted by a group purporting to represent the beautiful parable of the Good Samaritan, all in granite. It produces an excellent effect as a whole. The die contains marble bas-reliefs representing the employment of ether in the hospital and on the battle-field, and the lower base is ornamented with lions' heads. The group of sculpture and also the bas-reliefs were designed and modelled by J. Q. A. Ward, of New York, and executed by Barry, a famous Boston granite-cutter.

The parable of the Good Samaritan is in its literary description illustrative. It describes three principal acts of beneficence. He binds up the wounds, pours oil and wine into them, and carries the unfortunate to a place of refuge. The conception of a subject measures the scope and limitations of the artist. In painting and ordinary illustrations the Good Samaritan has been represented as performing one or the other of these kind acts. In this group he is doing neither. Because of this the composition is wanting both in comprehension of subject and in representation of fact. If the composition had represented either one of the described acts in an agreeable manner, it might have had some artistic value. Its greatest dignity of conception and composition would have been expressed by representing the concluding act of the parable, the others already accomplished. Such a conception would have appealed to the tenderest human sympathy. The plaster statuette of a freed-man leading a wounded soldier, by John Rogers, illustrates this view of the subject. In this group it is unsatisfactory in every respect. It would be difficult to contrive a more execrable position than that occupied by the man who fell among thieves and into the consideration of this artist. The execution of the group is in keeping with its conception. The right arm



Fig. 21. General Glover. By Martin Milmore. Commonwealth Avenue, Boston.



Fig. 22. Alexander Hamilton. By W. Rimmer. On Commonwealth Avenue, Boston.

and hand of the Good Samaritan are evidently intended to be engaged in the tender operation of caring for a wound, but from the distended veins these members might be those of a coal-heaver or blacksmith. The left arm is, like anatomical sculpture, well veined; it is doing something. The general impression of the group is, that it has not room enough, and it is made still more uneasy by the cutting away of every part of the plinth except where the figures touch it. Around the edge of the plinth it rests upon points, and thus gives the impression that the sculptor was afraid every detail would not be seen. The treatment of the entire group was evidently intended to display itself, and not as a sculptured part of an architectural effect. As sculpture it is unlike any of the works we are considering, in that the figures and the drapery are regarded from first to last as separate and independent facts, whereas in the average statue there is an intention to treat these facts as closely connected, to produce a single effect, that of sculpture. The drapery of the Samaritan was modelled on, not made a part of, the figure,—the reproduction of cloth in stone, not its identification with the figure as a subordinate substance, as seen in the Chantrey and the Franklin.

The bronze statue of General Glover (Fig. 21), by Martin Milmore, fails to appeal to public commendation, because it is a fine, rich, impressive subject conceived and executed without

any definite consideration of the varied statuesque phases common to all generals, or to this one in particular, either as illustrative of any personal fact, or symbolization of character. Familiarity with the best statues of the Old World justly makes the people ask for progress, if not perfection. A neglect to meet great opportunities is not readily forgiven. It is sometimes fatal. It was so in the case of the late Dr. William Rimmer, who made the granite statue of Hamilton (Fig. 22). The work that this genius had previously executed by himself, out of himself, and wholly independent of public knowledge, sympathy or interest, was astounding. It promised the possibilities of great things. It was met readily and generously by private appreciation, began with the Hamilton and there ended. The moral effect of this failure to meet expectation is not entirely forgotten. It is the indifferent work of a genius, not the consistent labor of talent.

The bronze Beethoven (Fig. 23), by Thomas Crawford, in Music Hall, is a popularly admired statue, for the same reason that his Otis in the Chapel at Mount Auburn is regarded as the finest one there. It has an elegant, gentle feeling about it that would be supposed as characteristic of the composer. One touch of sympathy between the observer and a statue is a wonderful necromancer. If the sculptor were to make it to-day, it is probable that the sentiment that now recommends it would be largely increased, and what is called the "trade of a sculptor" more faithfully studied. The Beethoven illustrates two noteworthy facts developed in this community: first, that a little classic feeling will go a great ways, and, second, that the classic arrangement of drapery on an undemonstrative statue, even if rudely done, sustains a decided effect. T. H. BARTLETT.

CORRESPONDENCE.

THE ARCHITECTURAL CONFERENCE. — BUCKINGHAM PALACE. — CROSBY HALL. — THE LAW COURTS. — PROPOSED REGULATIONS FOR COMPETITIONS.

LONDON, May 14.

THIS has been a red-letter week in the architectural calendar, for it has witnessed the meeting of the triennial conference of architects under the auspices of the Royal Institute of British Architects. The conference began on Friday of last week with the reception by the president and council, and ended on Thursday of this week. Among the more pleasurable meetings may be mentioned the visits to various structures, both old and new, and to private houses. On Monday morning, by the permission of the Queen, the conference visited Buckingham Palace. I anticipated much from this visit, but there was more in the anticipation than in the realization, for the interior decorations are all a sham. In going up the grand staircase, you notice that the walls appear to be lined with most beautiful marbles of various colors, but on close inspection find that the beautiful marbles are but plaster painted, with the joints drawn in black paint. The whole appearance of the place is grand and magnificent, and the arrangement of rooms is quite excellent, but the feeling on finding that everything is a sham — that the elegant ornament which might be carved wood is but plaster and gilt, that the beautiful, apparently enamelled table-tops are but well-executed imitations — is demoralizing in the extreme. There is a very large collection of paintings here shown, many of them old masters; of course I shouldn't presume to criticise the old masters, but I do think that the whole collection is not what one would expect to find in the principal palace in England. Monday afternoon was spent in visiting some of the old churches in the city. After visiting the last of these, St. Helen's, Bishopsgate, a suggestion was made by one of the members that a visit be made to the crypt of Crosby Hall, across the way, which was formerly the residence of Sir John Crosby, and at one time the palace of Richard III. The hall is now used as a restaurant, and the crypt is the wine cellar; it is of very wide span considering the early date. In this there were a number of skeletons and bones, here and there, that might have been the remains of previous architectural visits. On leaving, a most delectable entertainment was provided by mine host, and his request that his stock might be sampled was generally complied with.

On Wednesday morning a visit was paid to Mr. Street's new Law Courts. To give some idea of the number of architects present, I will state that when the head of the column, with Mr. Street leading, had climbed the vertical ladders at one end of the great hall, some eighty feet, — and there were two lines from bottom to top, — passed along the staging, two hundred and thirty feet, to the other end, wound around, back and forth, through arches, over planks and heaps of rubbish, down a circular stone stairway, and reached the centre of the floor of the hall, a total distance of about six hundred and fifty feet, gathering there about fifty strong around Mr. Street, two streams of architects were still climbing the ladders at the end where we ascended. One professional brother was cold-blooded enough to remark, while the whole number were in the crypts, that he should like to get out, and what a glorious thing it would be for the profession at large if he could succeed in locking in those that remained, and there detaining them until nothing but their bones remained to tell the tale. Before going over the building, Mr. Street had gathered as many as he could of the members in his office on the grounds, — a room about twenty by sixty feet, around which were hung many of the drawings for the work, — and explained, in a few words, the general character of the undertaking. He told how he had been hampered by Mr. Ayrton, First Commissioner of Works, and how his only hopes had lain in a wish for a change of administration that



Fig. 23. Beethoven. By Thos. Crawford. In the Music Hall, Boston.

would bring a new first commissioner. There was one statement that he made which many American architects would do well to make note of, that of the 1,594 drawings prepared for the building in his office every one was put in pencil by his own hands. The modelling for the carving and sculpture was all done in a room adjoining his office, and had been first drawn out by himself, then put into form by the modeller, and altered and worked up by Mr. Street. The two figures surmounting the strand front, one of King Alured, and the other of King Solomon, were also both modelled by Mr. Street. Much of the staging is still up, so that it is impossible to fully judge of the final appearance of the whole structure. But I think that the most pleasing portions — and I believe it was generally so acknowledged by the architects present — are the four sides of the interior court, which is not to be seen from the street. The interest is here concentrated on the pavilions in the centres of the sides, all of which are most charmingly worked up. The various arrangements and planning of the structure seem admirable. The judges, barristers, and "dirty public," all have separate staircases and corridors. The latter class especially have formed a very important factor in the general arrangements, and it has been the object as far as practicable to keep them entirely by themselves, so that they can come in and warm and dry themselves, and watch the proceedings of the court, without troubling those whose business it is to be about the building. In the matter of cost, Mr. Street stated that he had striven a little for the honor of the profession, and had tried to redeem it from one of the principal charges brought against it, and was happy to state that in so striving he had succeeded to the extent of keeping the cost of the first buildings erected below the estimate by £5,000.

One of the most enjoyable visits of the conference was to the residence of Sir Frederick Leighton in Holland Park Road, a property once belonging to the famous Holland Park estate. The object of interest here was the famous Moorish room, built by Sir Frederick to make use of a number of beautiful Moorish tiles which he had collected. In this room a divertimento was made, and the principal amusement of the afternoon to many consisted in watching people fall into the open fountain in the centre, for the old saying is: "Misery loves company," and after falling in yourself, your only desire seemed to be the finding of a desirable seat whence to view others follow in your watery footsteps, for it seemed part of the prearranged plan, and quite the proper thing to do, — this getting one's clothes wet. The exterior of the house, as many may remember from the published drawings, is rather uninteresting, the whole charm being inside and centering in the beautiful Moorish room, the exquisite beauty of which can never be imagined from viewing any geometrical pen-and-ink drawing, such as those that have been published of it.

On Thursday, visits were paid to the famous pottery works of the Messrs. Doulton, where the various processes of manufacture were witnessed. Everything here is made on the potter's wheel, and nothing moulded, even to the common jugs and beer-bottles. No designs are made beforehand, the design developing as the potter guides the clay on his wheel, some most delightful patterns being the result, and no two alike; for, exceedingly difficult as it is to reproduce a design exactly, no attempt is made to do so. The same method is carried out in the decoration. The afternoon was spent at Hertford House, where Sir Richard Wallace had kindly offered to receive the members and their friends, and a pleasant time was spent in viewing his many beautiful paintings and collections. The collection of furniture here is truly charming.

The various evenings of the conference were spent in reading papers on interesting subjects, and in discussions on the same, together with business meetings of the Institute, except on Wednesday, when a conversazione was held in the fine suite of rooms occupied by the Institute. The large meeting-room, library, and council-room were hung for the occasion with sketches and paintings by various artists and architects, many being by the late Mr. William Burges. The large rooms on the ground floor were used as music and refreshment rooms, the band of the Second Life Guards doing duty in the former.

In the discussion on architectural competitions, which occupied the whole afternoon and evening of Tuesday, many interesting facts were brought out, and a series of resolutions drawn up for the consideration of the council, to be by them formulated and sent out for signatures of members of the profession.

The purport of the resolutions was, that in all competitions an assessor should be appointed, who should draw up the conditions and render the decision; that in giving out a competition, sketch drawings only were to be called for at first: from these a number should be selected to again compete, this number not to exceed twelve; in the first competition the cost should not be limited, although it might be stated; that no premiums are to be paid and no mottoes used, the names of the architects appearing on their drawings. Mr. Brooks thought that the present system of premiums was nothing more or less than gambling, and should, as such, be abolished; that it was very demoralizing to the profession. The projectors are to pay to the competitors, according to the new order of things, a certain percentage on the cost of the work.

In large competitions, architects desiring to compete are to be requested to send in their names, and from these names a number to compete shall be selected. The assessor chosen shall be, in all cases, a man of not less than fifteen years' professional practice. Mr. Waterhouse thought that many competitors did themselves injury in

sending in two sets of drawings; he was sure they did in all cases where he had acted as assessor. There was not only a tendency to hurry off the second set without a full explanation, but it also indicated a doubt in the competitor's mind as to which he thought best for the case in point. He also thought that perspectives should be colored, as many architects had little idea of color, and it was not always safe to put a large building in the hands of a man with no knowledge of this subject. A colored drawing would often give a clue to his grasp of the matter.

Mr. James Brooks was very strong in his remarks. He thought perspectives should never be sent in; that they are very misleading, especially to the competitor himself. If he wants to show how any part looked, he might make a little sketch of that part. He thought that competitions were good for young men, as it was their only chance to practise designing, for in the best offices they had no chance, as the architect himself usually did the designing; and for his part he would say that he never allowed, under any circumstances, a draughtsman of his to incorporate an idea of his own in any of the office work; that everything which came out of his office was his own individual work. Mr. Waterhouse thought, in the matter of perspectives, that there was a tendency to carry the towers and turrets to a height entirely unsuggested in the geometrical drawings. It is to be hoped that the council will take this matter in hand, and send forth as the result of their labors something that the profession generally can sanction and heartily co-operate in, not only in England, but also in America.

WARRINGTON.

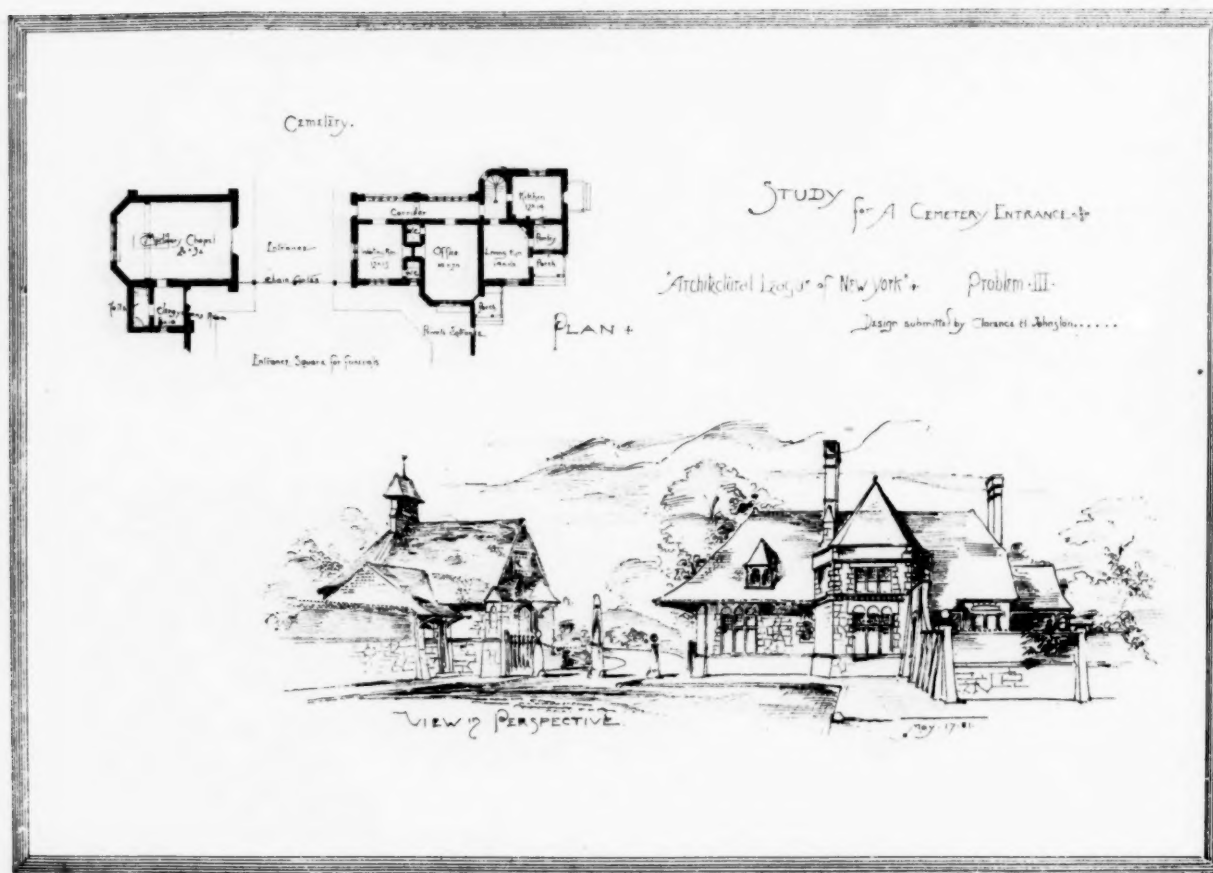
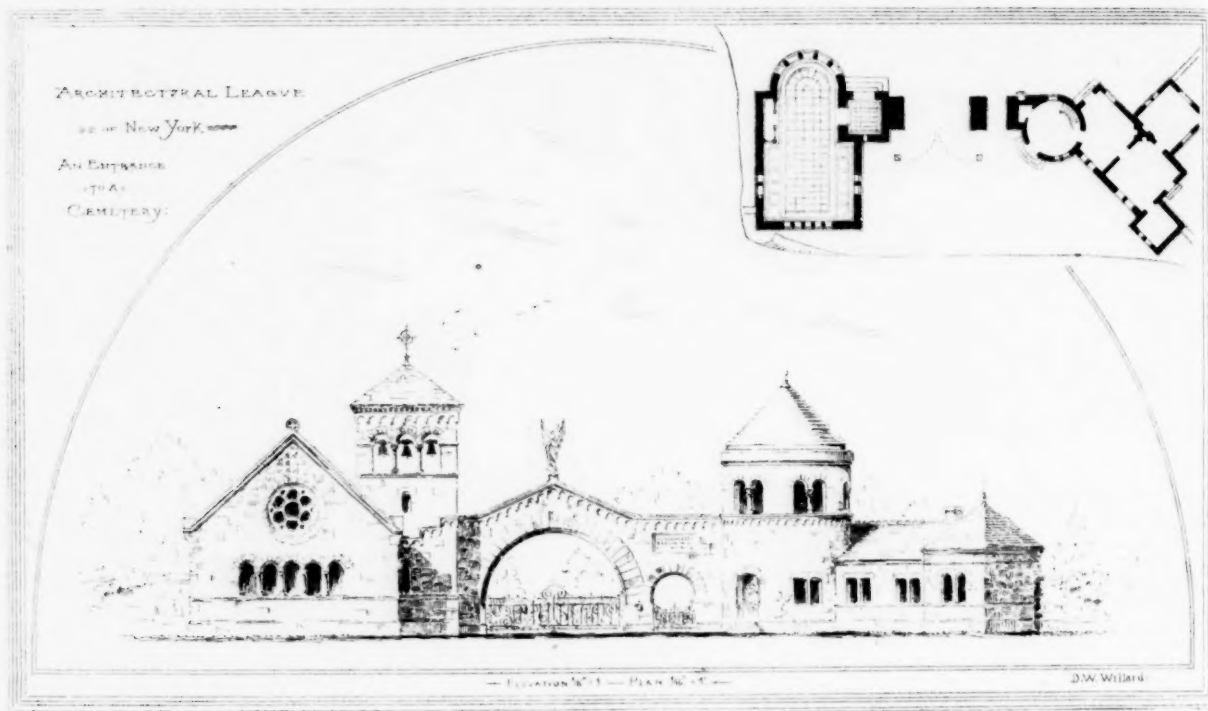
ON THE VENTILATION OF HALLS OF AUDIENCE.¹—IV.

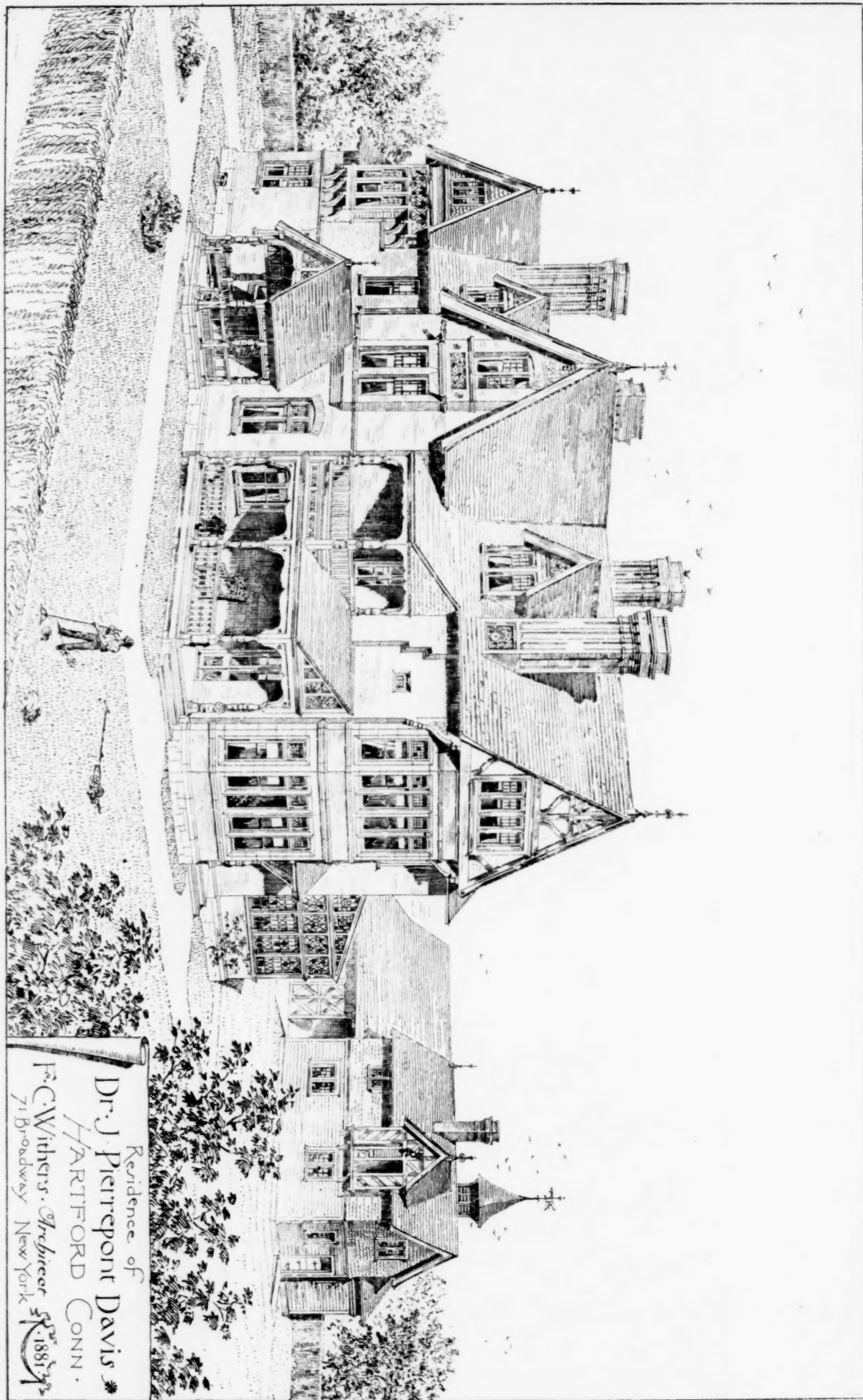
It now becomes proper to remark upon the great general cause of failure of the well planned, thoroughly constructed, and entirely controllable apparatuses for heating and ventilating. Anomalous or paradoxical as it may sound, it is a fact, that the most complete apparatus may be the most perfect failure. Every improvement in mechanism may have been schemed, every contingency of working may be adequately provided against, and yet the accomplishment, in warming and ventilation, will have resulted disastrously. The fact is certain, and to what fundamental error can it be ascribed? The mistake can, in my mind, be traced to the assumption, upon which the operating of apparatuses have been universally based, *of control* of the individuals warmed or ventilated, as regards their sensations of comfort, or their requirements for health. The error lies in giving the regulation of temperature to an engineer, or even to a general director (in case of an important building). An engineer may be a thoroughly competent mechanic, even more, he may be well informed in the practice, and possibly in the theory, of heating or ventilating; a director may have the theory and practice of heating and ventilating at his command, and be eminent in science or medicine as well; but from either of these control will be resented, and any effort to enforce needful authority will be thwarted. If this be the condition of operating an apparatus in competent hands, what happens when those less likely to enforce authority are placed in charge? The usual engineer is a well-taught mechanic, with ability to run and keep in order an engine, to direct the fireman, and possibly able to do his own steam-fitting in repairs; one who in the pride he would take in a well-kept apparatus, beyond the keeping of which he has no ambition, commands respect in his vocation. For such an engineer the capability cannot be expected which would allow him to direct or deviate when differing requests are made.

Any man may warm himself as he pleases. It is impossible for a number of men to tell one man what will please each of them individually, and for that one man to please them all. It is not the provision of means of control that will secure the wished for result. With every appliance failure is certain, unless those appliances pass into the hands of the persons to be warmed themselves. The neglect of this essential condition has led to repeated failures, until there is a popular belief that no ventilating apparatus can be successful, and there exists a general preference either for direct steam-heating, where an occupant of a room can manipulate the cocks or valves to his own liking; or for mere current warming, where opening or closing a register, also by any person in the room, controls the heat supply satisfactorily, when no importance is attached to the air thus adventitiously furnished or closed off. Only hospitals, or jails, or orphan asylums are happily ventilated, regardless of the volition of the sufferers, but greatly to the delight of ventilation doctors, whose experimental results are pleasant to contemplate.

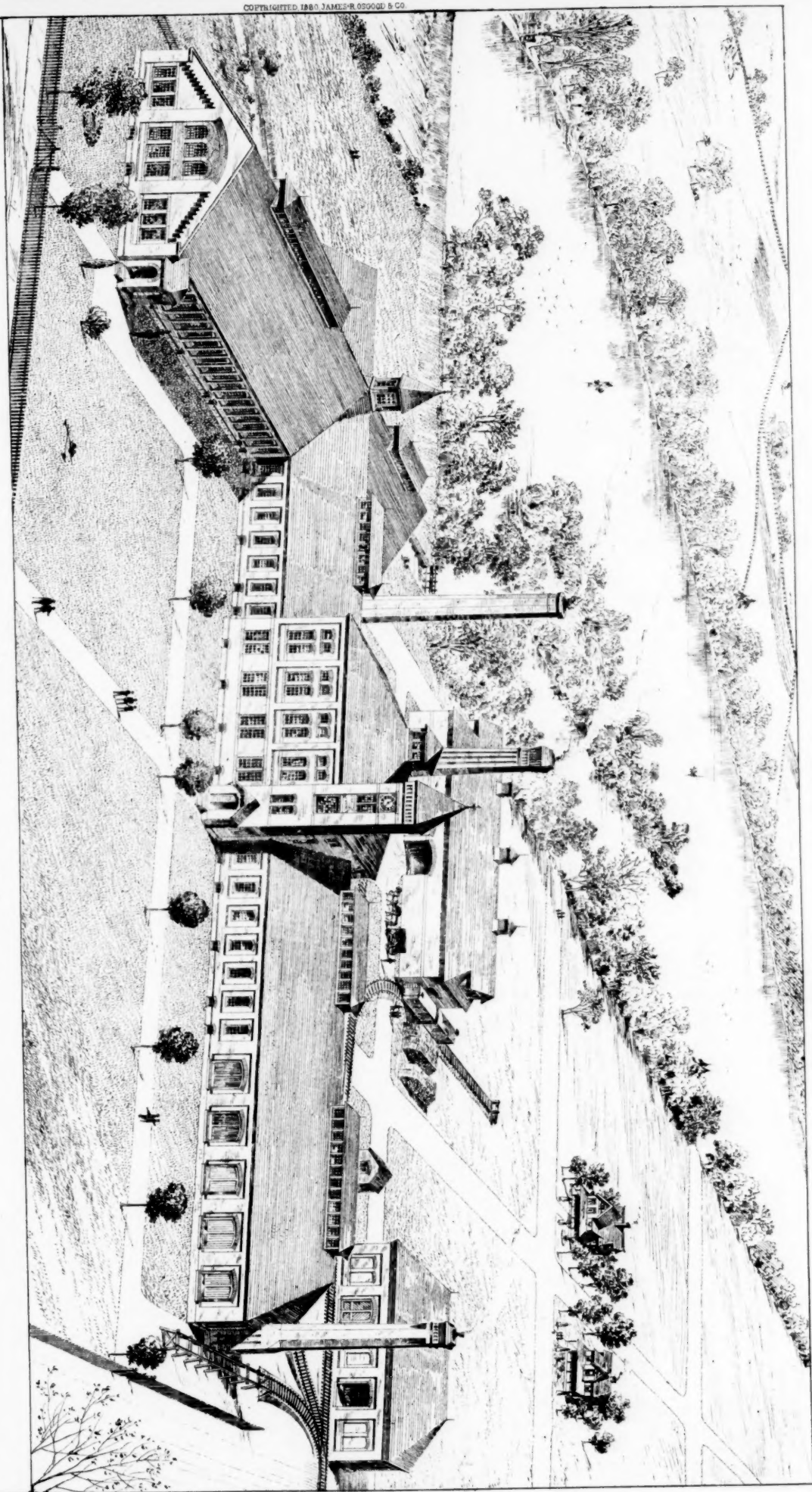
While commenting thus freely upon the drawbacks of previous efforts, it is a suitable requirement upon the fault-finder that he should offer a remedy; and a remedy will now be proposed, which is: That to the engineer, or persons in charge of the apparatus, should be delegated the running of the same mechanically, in a defined way, without his or they assuming the regulation of the temperature of comfort in any room or hall, or part of a room or hall, where the magnitude of the same admits of division into parts, — the temperatures desired or attained being positively controlled, within certain limits, by the occupants, or by representatives of the occupants, such as floor officials or ushers, in the rooms or halls. The limits of temperature proposed are 50 degrees for the lowest and 80 degrees (possible) for the highest. The supply of air at any one time should be constant and invariable, so that the equilibrium of distribution

¹ A paper by Robert Briggs, M. A. S. C. E., read before the American Institute of Architects, and printed in the Proceedings of the American Society of Civil Engineers.





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SPRING GROVE PAPER MILLS.

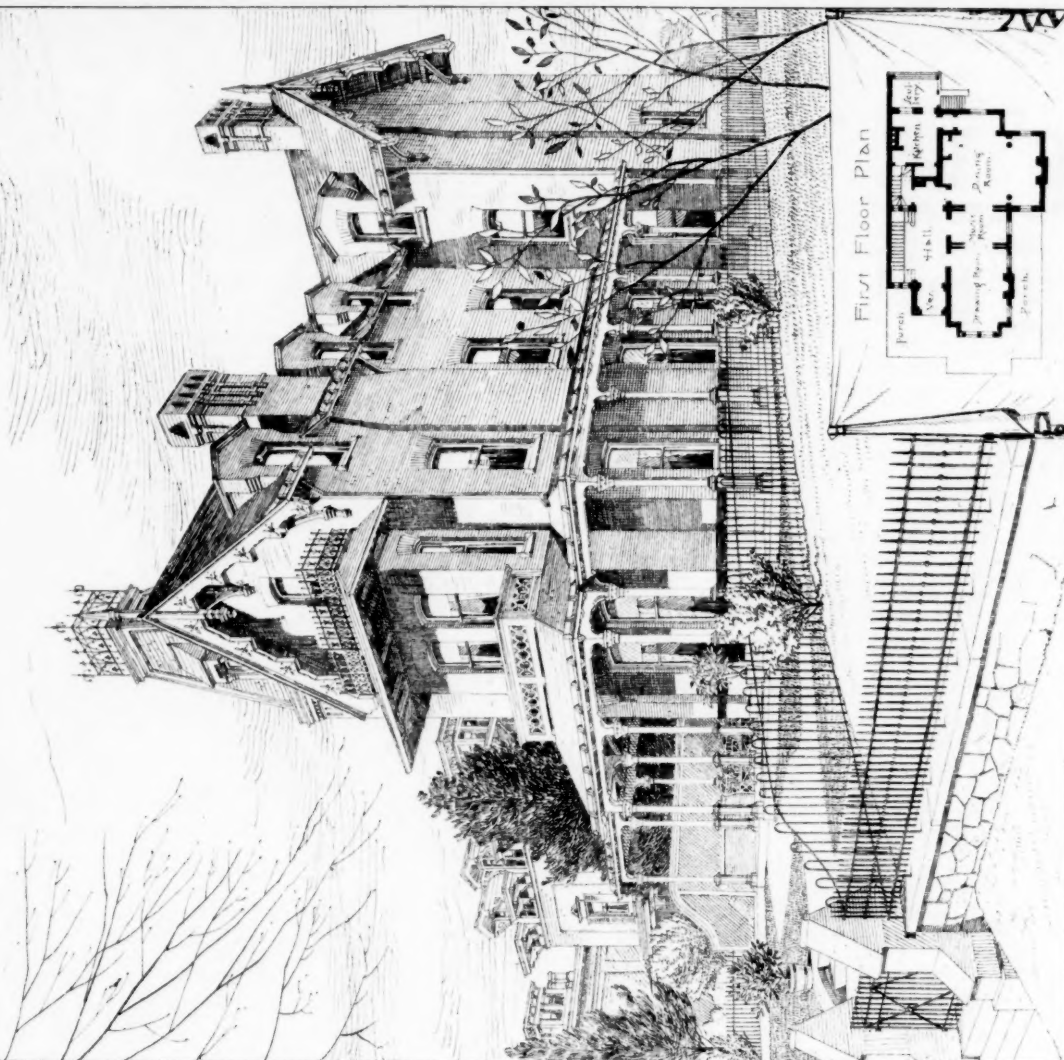
P. H. CLAFFELTER, E. & A.

for SPRING GROVE, P. H.

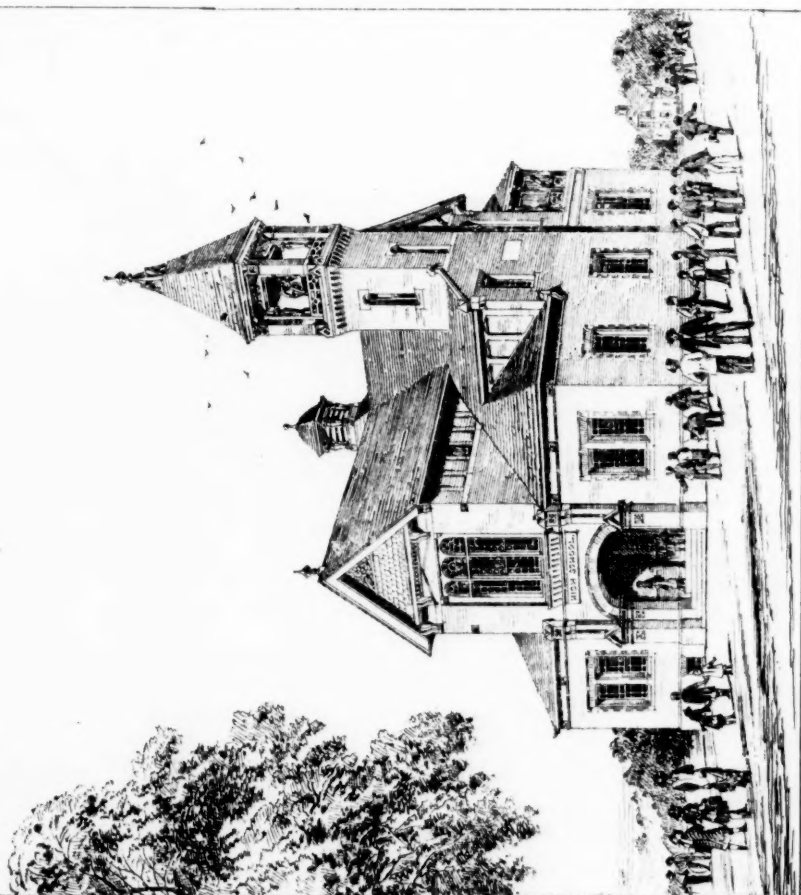
J. H. DEMPWOLF, ARCHT.
YORK, P. H.

THE ARCHITECT AND BUILDING NEWS, N. Y.

Residence of John McArthur Jr.
West Philadelphia Pa: J. McArthur Jr. Architect



Design
FOR
A Public
HIGH SCHOOL
J. McArthur Jr. Architect



will not be disordered by the closing-off or wide-opening of registers for admission of air,—the usual process for controlling temperatures with heated currents at present.

The arrangement of apparatus to effect the foregoing becomes necessarily a matter of original plan and construction, and is as follows: The boilers, fan-engine and fan may be assumed, for convenience of running, as well as for better and simpler construction, to be placed in juxtaposition in vaults, at any desirable point about the buildings or grounds. Where the grounds near the building fall away, so that the boiler can be located above ground, and yet below the levels of the coils, this disposition of boiler is preferable. One of the advantages of the proposed method is, that except the cost of ducts and mains, the placing of boilers some distance from a building, say some 300 or 400 feet, is not objectionable.

When the desirable level for the boilers, with regard to the coils, for direct return of condense water without force cannot be had, the return mains can descend to some separating recipient, where the condense water can be trapped off to a hot well from which the boilers will be fed by a pump; or the coils may be trapped separately or in clusters, and their condense water taken by return mains to the hot well; or the coils may be trapped off and the hot condense water wasted; or yet, again, the return mains with regular descent may carry the condense water to a *closed hot well*, placed below the boiler level, under the boiler pressure, from which it will be elevated by a *closed pump* to supply the boiler.¹

The main duct should be dry, air-tight, and closed as a passage-way, absolutely without openings into rooms, vaults, or general passages, excepting only such doors as may be necessary to give access to the duct for the purposes of the apparatus. Every precaution should be taken to make the main duct *inconvenient* as a thoroughfare. This main duct, in the arrangement of apparatus here proposed, may be carried under ground or under floors, anywhere amongst the foundations or cellar walls of the building; only prescribing that it shall be well built in smooth finished masonry, without angles, dry, air-tight and closed. Ducts smaller than twelve square feet sectional area, may be built of thin galvanized-iron, or may be built of wood (with narrow, 3-inch wide boards, tongued and grooved, mill-planed both sides, and lined with light sheet-iron, with soldered joints. The wood-work of ducts need not be expensive, but it should be substantial. While small ducts or branches can be cheapest made of thin galvanized-iron, in permanent structures, brickwork ducts, with arched or slate-covered roofs, of all sectional areas, branch ducts included, is the best construction. Coil chambers should be built in the manner and of similar materials described for ducts.

Returning to the arrangement of apparatus: There is to be constructed either directly in advance of the fan chamber or close behind it, connecting to the main duct, an *auxiliary coil chamber* to hold an auxiliary heating coil. This auxiliary heating coil should be built in at least four separate sections (with perhaps a larger number for an extensive apparatus); and this coil should, in its aggregate of surface, have enough to heat the entire volume of air required for winter ventilation from zero (or from the supposable lowest temperature of winter) to 50 degrees. Besides this sectional arrangement of the coil, it (the coil) should be so placed in the coil chamber, that the air can be passed or by-passed, through or around any one or other or all of the sections, under the regulation of sliding doors or of louvered blinds, so that not only complete but instantaneous control of the heat of the entering air can be had.

With the use of these means of control of the heat of the air entering the ducts, to meet every temperature of the external air, the duty of the engineer so far as relates to the *heat* in the building (for the most part) ceases. He will be required to see at all times when the outside temperature ranges below the limit of 50 degrees that the air passing into the main duct has a constant temperature of 50 degrees.

This temperature offers great advantages in the transmission of air currents. It allows them to be carried under ground, in cellars, near foundations and under floorings, to any desirable distance, without loss or gain of heat in the transmission. It places all the local coils in the building on an equality in the demand upon them to supply hot or heated currents. It will be found that half the heating surface for the entire building will be demanded in this auxiliary coil, and that this surface will be peculiarly efficient, because of the great difference between the temperature of the coil surface and that of the effluent air from the coil. With the reduction of dimension of the local distributing coils, a corresponding reduction of dimension of flow and return mains will be permissible. And an advantage of the highest importance is yet to be stated: all risk of freezing up the return mains or the lower pipes of the local coils (or occasionally an entire coil) is obviated, while nothing but positive neglect could allow freezing to occur in one of the sections of the auxiliary coil.

The local distributing coils should, perhaps, be sectional, in not more than two sections for the larger coils, but it is questionable, whether any division of these may be necessary, although the writer would advise it in construction. These coils should be in chambers arranged for the air to be passed or by-passed, through or around them, by the regulation of slides or valves to be placed under the con-

trol of the occupants of the room or of the officers or ushers in a hall. The means for regulation should be solely in the rooms, or halls, themselves, and any gradation of temperature of entering air from 50 degrees to 80 degrees should be instantaneously commanded, without, however, varying the quantity of air regularly supplied. If, with these provisions, by any accident or neglect, the extreme of heat or of cold be allowed in the air-supply for a short time, the effect will not be serious, for the instant restitution to what the occupants of a room may deem their temperature of comfort is feasible. The settlement of degrees of discomfort amongst the number occupying a room will have to be effected by tolerance, much as the fresh air is got in a railway carriage, where there is no one to blame but the passenger when a window is opened or closed.

In halls it is manifestly proper that the floor should be separated in divisions, each having its own supply of air, so that the local regulation may meet, not only the small differences of local requirement which always occur, but also the differences of individual demand of equally general, and even more urgent, occurrence. The galleries of halls have not merely a small difference in requirement, but at all times they demand two or three or even more degrees *less* temperature for entering air than the floors. In some cases, as in the Senate Chamber or the Hall of Representatives at Washington, and generally in all legislative or council chambers, the galleries are occupied by a crowd of spectators clothed, in cold weather, in heavy outer garments, while the floors must be comfortable for the members, who are by no means crowded together, in usual indoor clothing. At evening sessions when gas-lights are required, the increase of temperature therefrom will be found mainly in the galleries, and it then becomes essential to supply them with cooler air than the rest of the hall. It is a consequent necessity for the successful ventilation of halls, that the gallery supplies of air be distinct and separate from those to the floor; and it is much better to arrange for these supplies in separate divisions, one, if not two, to each side of the hall.

The duty of the engineer of the apparatus, so far as the local coils are concerned, will require him to put in use one or both sections of such coils to meet the demand of the season or day as regards mere warming and positive heating. Beyond this he has, whenever the external temperature is below 70 degrees, only to see that each coil is supplied with steam, and in satisfactory operation as a steam coil, under full boiler pressure. With this, and with his charge of the temperature derived or proceeding from the auxiliary coil, his responsibility for heating the building in cold weather ceases. As the weather becomes warmer in any year, and when the external temperature reaches 50 degrees, the auxiliary coil is thrown off. At 65 degrees to 70 degrees the local coils cease to be operative, and thereafter the engineer, running the fan at double rate when summer ventilation is required, supplies to such hall (the ventilation of which was based on ten cubic feet of air per person per minute) the maximum of twenty cubic feet; which quantity will be found nearly all that can well be delivered amongst a crowd, where each person occupies, say, four square feet of floor-space, or the average theatre allowance.

Economy in running an apparatus must always be considered in planning the same, and no building can be *ventilated* to the full extent continuously, whether its hall be occupied or not, with any proper regard for expenditure. It follows that notwithstanding what has been said about exonerating the engineer or director of the control of the heating, there must yet be left with these persons or one of them the means of reducing the air-supply to meet the real necessities of use or vacancy — of complete or partial occupancy. This may be effected in part by the running of the fan, but it will be found necessary to provide for regulation of air delivery by closure of ducts or branches to some extent. As the local coil surfaces are unalterable, the effect of employment of a greatly reduced volume of air at times will be to enable them to give currents of much higher temperature than 80 degrees.

Thus in a hall with 1,200 people, at a minimum of 10 cubic feet per person per minute, we have 12,000 cubic feet per minute. If the local coils can take this air at 50 degrees and heat it to 68 degrees, which may be supposed to give 70 degrees in the room in moderate weather, and if the same local coils can take this air at 60 degrees and heat it to, say, 75 degrees in the coldest day (the 80 degrees heat from local coils is supposed in this case to warm up the room after it may have been chilled for want of heat), and also to give 70 degrees in the room, — it is evident that reducing the quantity of air to 1,200 cubic feet per minute, these same local coils are sufficient in extent to carry the 1,200 cubic feet from 50 degrees to over 125 degrees in the same minute of supply, and at this temperature the room will be warmed to 70 degrees against zero out of doors, at greatly less expenditure of fuel. For in one case there is wasted of vitiated air 12,000 cubic feet which had been taken at zero, and allowed to escape at 70 degrees, while in the other case, only 1,200 cubic feet, taken also at zero, and escaping at 70 degrees, is demanded in effecting the heating.

This possibility of economizing in the working of every system of ventilation is the bane of all methods. Ventilation is not economic as a process of warming. In many instances after a demonstration of successful ventilation, the working of the apparatus is permitted to degenerate to the barest warming. There is demanded a conscientious persistency in maintaining a thorough ventilation, where the warming can be made satisfactory without it, that surpasses the

¹ This last very valuable improvement in the arrangement of return mains was proposed and introduced by Wm. E. Worthen, M. A. S. C. E., of New York. It presents the same advantages, as regards the "air difficulty," that are found in direct return to boilers.

moral appreciation of a money-getting manager or of an economic official.

In presenting this optimistic view of the subject of practical ventilation of halls of audiences, it must be accepted as indicating the path of advance, not as demonstrating the impropriety of advance. No expenditure is justifiable which cannot have the assertion of necessity; nothing surpassing the admitted wants of society will be appreciated or willingly paid for. The current belief and faith in the necessity for purer air in halls must be entertained by the audiences, before the expenditure for provision or of maintenance of ventilating apparatuses can be warranted. It is sure that people do become less tolerant of the closeness and odors of halls, court-rooms, school-houses, year by year. This is evidenced by the extravagant schemes of sanitation of such places on the one hand, and by the boasts of impossible accomplishment with wholly incompetent means on the other, that find so frequent publication. It has been the purpose of this paper to set forth the least quantity of air-supply compatible with relative purity in the air of an occupied hall, and then without gloss or extenuation to set out the difficulties and costs in obtaining this least quantity, and the inconvenience and discomfort attendant, so that they shall all be appreciated as incident to the problem of ventilation.

Above all, in the effort to give or establish practical limits for the necessities of ventilation in halls of audience which can with safety be aspired to at this present time, and with justice be demanded by the community from all those who control the management of audience or session rooms, it is not wished to be misunderstood by supposing that this paper has been, or is, advocating the dispensing with any real demand in quantity or quality of the supply of fresh, pure air. Compliance with the present system of ventilation of hot-air furnaces, which system is merely heating to requisite intensity, with adventitious supply of air, is as far from the ideal of perfection as the scheme of giving to the occupant of a hall the healthful air of the mountains, with the freedom and volume of the west wind, is from the possibility of construction or of operation. Little by little modern society appreciates the conditions of healthful, civilized existence. The removal of cause of offence is the first requisite of sanitation, and it is the first requisite of ventilation. Our tolerance of personal uncleanness in small ways, and in large ones also, goes far to account for the offensiveness and unhealthiness of many places of public gathering. Arguments on this point, and social enforcements of regulations in this regard, in theatres, court-rooms, galleries of public halls, school-rooms, public conveyances of all kinds (especially the latter), will be more efficient than the indoctrinating of surmounting the difficulty by gales of fresh air, furnished regardless of comfort and of expense.

Finally, after establishing the requirements for necessary and indispensable ventilation of audience-halls and of audiences, it becomes the indispensable preliminary that the original planning and subsequent erection of the buildings shall provide suitable rooms for apparatus, together with ducts, distributing passages and flues, in order to render available the methods of the mechanical engineer; by which methods ventilation, with comfortable heating, can now be effected with controllable, positive and satisfactory result.

THE ILLUSTRATIONS.

HOUSE OF MR. J. MCARTHUR, JR., PHILADELPHIA, PA. MR. J. MCARTHUR, JR., ARCHITECT.

DESIGN FOR A HIGH-SCHOOL BUILDING. MESSRS. SILLOWAY & COBB, ARCHITECTS, BOSTON, MASS.

COMPETITIVE DESIGNS FOR A CEMETERY-ENTRANCE. BY MESSRS. D. W. WILLARD AND C. H. JOHNSTON.

THE terms of the programme were so vague that a great variety of interpretation was possible.

Mr. Willard's design shows great sobriety of detail, a simple and convenient arrangement of plan, and a very considerable success in giving a proper character to his composition. The combination of the gable moulding on the face of the bell tower is perhaps hardly warranted; and the character of the iron-work would doubtless be advantageously modified by further study.

In Mr. Johnston's drawings, while the character is less evident, there has been preserved a certain simplicity of masses and roof-lines, which could have been carried farther without detracting from the picturesqueness of the composition. The battering of the foundation-walls is not to be commended, and is rarely successful in such cases.

HOUSE FOR DR. J. PIERREPONT DAVIS, HARTFORD, CONN. MR. F. C. WITHERS, ARCHITECT, NEW YORK, N. Y.

SPRING GROVE PAPER-MILLS, SPRING GROVE, PA. MR. J. A. DEMFWOLF, ARCHITECT, YORK, PA.

These mills are nearly completed. The buildings were put up on the slow-burning principle advocated by the Boston Manufacturers' Mutual Insurance Company, which now holds risks on them. The articles of the correspondent "E. A." which appeared in *The American Architect and Building News* in 1879 have given much valuable information on this subject, and by them the architect was enabled to induce the owner to adopt this mode of construction, effecting a saving of insurance as compared with the underwriters' report of about 1½ per cent over the rate on the old mill. The floor

beams are 10" x 13" dressed and chamfered and laid eight feet between centres; they are supported on brick corbels at walls, and oak posts at bearings. Heavy tongued and grooved plank form the under floor, covered with unflammable felt, to receive the 1½" Georgia-pine top floor. The roofs of the one-story buildings have wrought-iron trusses with wooden purlins, and 1½" dressed, tongued and grooved sheathing, which is bedded in mortar on the side walls. To check the rapid spread of fire, brick partition-walls have been run up to the slate of the roof, and the communicating doors of these walls are covered with leaded tin. Monitors have been built with timber posts forming the openings for swinging sashes which are controlled by light shafting conveyed to the floor. The interior of the brick walls and under side of roofs and floors are coated and finished with light tinted silica paint, thus avoiding all plastering and concealed spaces. The tower has been carried up to a sufficient height, so that the tank, which is contained in the roof portion of the same, affords hydrostatic pressure to the sprinklers and fire hose commanding the highest point of the surrounding buildings. Brush's electric light will be introduced to illuminate the different departments, while rotary blowers on the injection plan ventilate the buildings and carry off the steam from the dryers to prevent condensation and dripping. The straw-house is connected by a pneumatic tunnel forcing the cut straw to the store-room immediately above the rotary boilers. The two Fourdrinier machines produce continuous sheets of paper 80 and 100 inches wide respectively, at the rate of 1,250 pounds per hour. Cost of buildings and machinery \$250,000.

MR. ATWOOD'S DESIGN FOR THE NEW YORK PRODUCE EXCHANGE.

The following description should have accompanied the illustrations published in our last issue. The oversight was not discovered until it was too late to remedy it.

The drawings do not require much explanation, but this might be said:—

That the great "Hall of Exchange" is intended to stand forth as the prominent feature of the design, and it has been arranged with the proportions of the old Roman basilicas which were designed to fill precisely the same requirements as in this problem. By reference to M. Viollet-le-Duc's *Discourses on Architecture*, pages 400 to 450, the meaning of the diagonal lines across the sections will appear. The proportions of the heights to the widths have been modelled on the Egyptian triangle there spoken of, and in fact, these proportions are very similar to those of the great Basilica of Constantine. In brief, the principles which the architect has endeavored to carry out in this design are as follows: Equilibrium obtained in the system of construction by active resistances opposed to active forces; architectural effect the simple results of the structure and the practical necessities of the work; decoration derived simply from the use of buff and colored brick and terra-cotta panels, modelled in conventional representations of the manufactures and products to be sold in the building, and structural details in the Byzantine style. The great hall was intended to be finished entirely in light buff brick with bands, etc., of other colors. The great columns were to be of granite, or blue-stone, and the roof of central portion of iron and glass.

LEGAL NOTES AND CASES.

In an action for rent, the tenant claimed damages for a failure to put him in possession of a house, a part of the premises leased; there was no evidence given to show that the rent to be paid for the house was less than the actual annual value of it. The tenant, who had laid in a stock of goods, claimed to set off the loss he suffered from being compelled to sell them at a loss. The landlord was prevented from giving possession by the refusal of the tenant holding to remove. The court decided: 1. In the absence of bad faith, the tenant could set off only nominal damages, unless he showed that the actual value of the rent of the house was greater than he had agreed to pay. 2. In no event could the tenant be permitted to claim as damages losses arising from the loss on the goods; his injury, if any, was for the loss of possession of real estate. *Allegart vs. Smart*, Supreme Court of Pennsylvania, January 24, 1881. H. E.

Negligence. — Defective Condition of Grounds. — Naked License or Permission to pass over Lands.

An action for negligence was brought against a railway company by A, who was employed by a lighterage company, which was authorized to carry the freight of the railway to and from its freight-shed; and there being no access to the freight-shed except across the railway track, A, and his fellow workmen, came and returned across the track, at a safe place provided by the company. On one occasion, at nightfall, A, in going out, crossed the track, not at the place provided, but at a different place, and fell into a pit in the track, and was injured. Held, the doctrine that a naked license or permission to enter or pass over premises will not create a duty or impose an obligation on the part of the owner towards a licensee is so elementary that it cannot be questioned. And there is nothing in the present case to indicate anything beyond a passive acquiescence on the part of the railway company in the custom of the employees in the freight-shed to cross its tracks at other places than that which the company had provided for the purpose. The case is not as strong for A as the common one, where the owner of lands has allowed such persons as chose to do so for their own convenience to pass over them without

hindrance. One who uses another's lands cannot complain if he encounters unexpected perils. *Morgan vs. Pennsylvania Railroad Co.* Supreme Court of Pennsylvania, May 14, 1881. H. E.

Mechanics' Lien. — Custom of Trade to affect Right.

The right to file a mechanics' lien being purely a statutory right, evidence to prove a custom of the trade with reference thereto is incompetent. *Smith vs. Stokes*, Supreme Court of Pennsylvania, February 28, 1881. H. E.

Mechanics' Lien. — Labor for Contractor on Finishing Work.

Labor performed upon materials intended for use in a building, and which have actually been so used by the contractor, may be protected by a mechanics' lien. The petitioner worked in getting out finishing work for the building under contract, for the contractor, at days' wages. *Wilson vs. Sleeper*, Supreme Judicial Court of Massachusetts, April, 1881. H. E.

Wages. — Assignments. — Notice to Employer. — Title.

Wages due by a railroad company were assigned to a merchant, who gave the treasurer of the company notice thereof by mail. He received, in a few days, from the office of the treasurer, a printed circular, which stated that the assignments of the wages of its employees would not be recognized, and subsequently the company paid the assignors. The merchant sued upon the assignments and recovered, the court deciding that the payment of the wages to the employees was not a defence to the action, since the company had sufficient notice of the assignments which transferred the title to the money due to the assignee. *Beirne vs. The New York, Lake Erie & Western Railroad Company*, New York Supreme Court, February 14, 1881. H. E.

Nuisance. — Excavation on Highway. — Guards.

An excavation adjoining a public highway, or so close thereto that persons who use the way in a lawful manner, and with ordinary care, may, by accident, fall into it, is *per se* a nuisance. And it will remain a nuisance until proper guards are put about it. *State vs. The Society for Establishing Manufactures*, Supreme Court of New Jersey, November Term, 1880. H. E.

MURAL PAINTING.

At the closing meeting of the late Architectural Conference, Mr. Ford Madox Brown read the following paper:—

My experience of mural painting is not very great, nor of long standing. Three moderate-sized panels are all that I can boast of in this direction: I began the actual painting of them little more than two years ago; but I may say that I have been thinking on the subject all my life, and I consider it one of too great importance to the country at present for me to wish to withhold from you what little I have learned about it.

I will confine myself to the technical and practical side of the matter.

There are twelve panels to be painted in the large meeting-room where I am at work in the Manchester Town-Hall. Each panel is rather more than ten feet long, by somewhat less than five feet high. They are not quite five feet from the ground. They are thus not very dissimilar from pictures on the line in an exhibition. Each panel has a window directly over it, and one facing it. On fine days there is plenty of light, but in the short gloomy days of winter the paintings are best seen by gas-light, on festive occasions, when the hall is brilliantly illuminated. Some years elapsed before the present decorations were set in hand, or the method of painting them fixed on. At length, at my recommendation, that process (of Mr. Gambier Parry's invention) known as "spirit fresco" was selected. Meanwhile, however, the spaces had been filled in with a compound of lime and marble dust—fine and hard.

Mr. Parry, in his pamphlet called "Spirit-Fresco Painting," recommends a stucco composed of two parts of pure river sand to one of well-slacked lime. I do not fancy the change of sand for marble dust would, in itself, have caused much difference, had not the plasterer trowelled the surface far too smoothly; till it was like ivory, in fact. To remedy this, I had the faces of the panels cut down with gritstone; then, to increase the absorbency of the stucco, it was, before receiving the first preparation, well heated with a gas apparatus contrived for the purpose.

One of the distinctive features of Mr. Parry's invention, compared with the somewhat similar methods in use on the Continent, seems to be this coating of the wall, before painting on it, with some of the same medium with which the colors are ground. This preparation, which should be applied not long before the actual painting is commenced, arrests, as I apprehend, the too great absorption of the medium out of the colors into the stucco, which might end otherwise, as with Leonardo's oil-painting on plaster, in the total pulverization of the colors on the surface. Also this medium, which consists of wax, copal, and gum elemi, is, after drying, still susceptible, even for a considerable time, of re-solution by the spirit, or essence of lavender, with which it is first compounded, so that the fresh colors laid on the surface are constantly re-moistening and assimilating themselves to the medium already absorbed into the plaster, thus, so to speak, striking roots there.

In France and Germany, where a process, if not exactly identical with the Gambier Parry one, at least in a great measure analogous

to it, is now superseding the old Italian fresco, they do not coat the wall first with medium—at least, so I am told. This is cheaper, but also less scientific; but when we consider the time which these works are expected to last, we should not be niggardly in their preparation.

Years ago I tried my hand at two large specimens of Italian, or "Buon," fresco; they were destroyed, and I regret that I have not now got them to see how they might have stood.

The surface of the old Italian fresco is very beautiful, with just that even semi-gloss which, for a wall, is so desirable, looking well from every point of view. The difficulties and hindrances in its execution, however, are such that I question if many who have once tasted the sweets of the Gambier Parry fresco would think of returning to the older one.

Then there is a *sine qua non* with regard to the painting of walls in this climate,—in this smoke-bedimmed country,—a consideration not to be overlooked, and expressed in the prudent housewife's inquiry, "Will it wash?"

To my own experience the Gambier Parry fresco will wash. I have tried soap and a nail-brush on a small specimen before beginning on the wall itself, and it looked as well after the operation as before. Italian fresco, whatever they may say, *will not wash*. The relative claims of stereochrome (water-glass) with Mr. Parry's method remain to be considered, but I will return to their consideration later.

Mr. Parry, I understand, can point to examples of his process of twenty-five years' standing in England. I have myself, not long since, inspected the French paintings, much in this style, by Hyppolite Flandrin, in St. Germain des Prés, at Paris, and they did not seem to me much changed since the day when I first saw them thirty-six years before.

As to the facilities for working the colors, and executing different textures and appearances, in Mr. Parry's process, there seem to be practically no limits to them. Every proceeding that is applicable to oil, or water-colors, or fresco, is easy of attainment in this spirit fresco, and, what is of great importance, every color may be used in it. Depth of tone and brilliancy in the lights, the utmost transparency, with the height or very impudence of *impasto*; all varieties of glazing, scumbling, retouching, or stippling,—nothing seems to come amiss to it; and though certainly, if the portion in hand can be finished off at once, it will, when dry, look neater,—as, indeed, is also the case in oil or water-color,—yet, as the drying process is never complete on the next day, the work can, if necessary, stand over till then.

This, at least, is the charming experience of the first five or six weeks' work. But after these are past, and the portions first painted have commenced drying in earnest, then a further experience is gained; and the one quality which, more than any other quality, becomes a desideratum in the work is strength.

To paint strongly and warmly, and more than ever before, transparently in the shadows, proves, in fact, to be of most imperative necessity: for the colors, after a certain duration of drying, become cooler and lighter and more opaque, and ever as the months go on, paler and more opaque; so that one cannot too resolutely grapple with this tendency. This is, indeed, one of the chief difficulties of the process, and one that at first caused me some discouragement till I got into the way of meeting it. The other, and I am happy to say the only other, drawback that I have experienced in this mode of painting consists in the tendencies of several of the colors to dry in different degrees of glossiness. For instance, ivory-black will dry perfectly dead compared with every other pigment on the palette. When you walk past your painting, as the opposite windows faintly reflect in the gentle gloss of its surface, every touch of ivory-black tells out like a hole in the wall. Other colors have a tendency to shine too much. I communicated with Mr. Parry on the subject, but he does not seem to have noticed the objection, and as he has not seen my Manchester works, he may possibly have never yet scrutinized his process exactly facing a row of large windows.

Now, the plan I have adopted to secure evenness of surface is that of touching the offending parts with a wax varnish, the instructions for making which are in Montabert's well-known treatise on painting. It is a recipe that I have stored in my memory for thirty-six years, and I should be much beholden to Mr. Parry if he will either sanction it, or invent us a better one. Now I cannot insist too much with you, gentlemen, on the desirableness of wall-painting being uniform and beautiful in surface. With easel pictures it is different, for no one at all used to them would look at them from a wrong angle; but in spite of yourself, you must view a mural painting from every angle and situation. Baron Leys, the great Antwerp painter, so well recognized this that, in his decorations in the Town-Hall of that city, he employed water-glass for the wall facing the windows, though for the two end walls of the same room, as also for the decorations of his own dining-room, he used gutta-percha oil,—something, it would seem, very like spirit-fresco medium.

There can be no doubt that water-glass, properly used, not recklessly squirted on (as our Maclise employed it, in the impatience of his great genius), forms the most beautiful and unbroken surface of any, not even excepting Italian fresco, where the necessary egg-retouchings can always be detected; and stereochrome has this advantage over spirit fresco, that while the paint in that process grows gradually weaker, in water-glass, the final aspersions, to use Maclise's own words, "has the enhancing effect of the shower on the rose, dyeing its native hue of a deeper, richer tinge." But in Germany,

the very country of its invention, water-glass seems to be now given up; so we must needs be content with our native process, and I for one feel nothing but gratitude to Mr. Gambier Parry for the years of labor he bestowed on his experiments, and the advantage to art in this country.

Not to detain you much longer, I will conclude with a few observations: first as to the kind of wall-spaces best fitted to receive paintings; and lastly on the choice of subjects suitable for them.

The idea of a picture being naturally a movable object, and one enclosed in a frame, is so wedged into and embedded in the English mind, that though here it may sound scarcely credible, I can assure you I have been asked more than once by persons seeing me at work at Manchester, "where my picture was to be hung when finished." The fact was, that the naturally recessed panels under each window, between the richly grouped vaulting-shafts on either side, suggested to the ordinary mind the pictures they were wont to see around rooms. Now I do not for an instant mean to infer that such spaces are not naturally fitted to receive paintings, but I would urge that they are not the only spaces fit to be painted, and that all spaces need not necessarily be sunken panels. To my mind, to complete the decoration of this great hall, it will ultimately be desirable to paint not only these twelve panels under the windows, but the vacant irregular spaces at the two ends of the room; one, a magnificent arched space about forty feet from the ground, over the organ; the other, a long irregular space over the two main entrances, and cut into by them. The idea of pictures around a room would then be done away with, and the mural decoration of the hall perfected.

I remember, years ago, a company of young artists so impressed with this principle, that in their enthusiasm for a set of spaces high up out of sight, and each with a couple of circular windows cut in the middle of it, they volunteered to paint the whole gratis, and did so! But there may be a medium in perforating your pictures. The best spaces for painting are such as have no immediate deep ledges to shade the edges of the composition, — spaces of any shape that seem otherwise useless, and if possible, spaces where the sun does not reach; for while I am at work at Manchester this same sun, decked in a little brief authority (fortunately very brief), plays momentarily such tricks with what I am painting as might make St. Luke himself weep. As to choice of subject, it cannot be too often impressed by the architects on those in authority that it should be left to them and the artist in combination. A fine event, morally or historically (let us say the Peace of Utrecht), does not necessarily make a fine painting; on the contrary, The Peace of Utrecht can never, as a picture, be but a number of men assembled together in a room; and yet to get fine painting is the chief business.

Then, again, if they will urge on the painter events requiring too many figures, it may prevent his doing justice to the work; he cannot render the expulsion of the Danes in three lines, as Hogarth drew the soldier and his dog passing through a gate. One subject they would have wished me to paint at Manchester was the opening of the Town-Hall itself, with a procession of *forty thousand people five miles long!*

On the other hand, the painter should himself be reasonable and not too poetic in his imaginings. Eros reproaching his Brother Anteros for his Coldness may be very pathetic, but scarcely to the tastes and comprehension of a Lancashire clog-wearing community, and the poorest and most illiterate of the rate-payers have to be thought of.

The subjects chosen for the great hall are representative of the history of Manchester from the time of the Romans to the present day.

EGYPTIAN ANTIQUITIES.

A NOTE by Brugsch Pasha on the late discoveries at Sakkara appears in the *Institut Egyptien*. It runs as follows: —

Fifteen days before his death, Mariette Pasha, the President of the Institute, summoned me to his bedside, and begged me to render to him and to science a service of which he could not calculate the importance. Last year, after he had left for France, he had heard that his Arab laborers had opened one of the Sakkara pyramids. They had opened the north door and cleared the passage which led to the funeral chamber in the interior. Along the whole passage, thirty-six metres in length, the walls were covered with hieroglyphics, which constantly reproduced the names "Merira" and "Pepi" encircled by the royal elliptic. Mariette, to whom were sent impressions of these hieroglyphics, believed they only applied to some high functionary of State, as neither of the names was preceded with the usual royal titles of the Pharaohs. At the same time Mariette informed me that the Arabs had found the entrance of another pyramid near the first, with the passage and funeral chamber similarly adorned with numerous inscriptions. "Go, to-morrow," he said, "and study and report on these two pyramids." I went next day early, and late in the evening presented my poor friend the following report. His eyes glistened with joy as I read it: —

"The two funeral monuments are not mere *mastaba* (ordinary rock tombs), but true pyramids. They enclose, the one, the tomb of King Pepi, with his official title, 'Merira'; the other, the tomb of King Horemsaf, the son of Pepi, of the sixth dynasty, according to Manetho. The granite sarcophagi which once held the mummies of these two kings have been found in their original places. The hieroglyphics with which they are covered prove that the names of 'Pepi' and 'Horemsaf' belong to kings, and not to mere court functionaries.

The mummy of the son of King Pepi, well preserved, though robbed of its ornaments and its linen, has been found in its pyramid. The two pyramids are the earliest examples of royal tombs of the period of the old empire adorned with hieroglyphics, which not only give the names of the kings who are buried there, but which also set forth for the first time a long series of religious texts, like the 'Book of the Dead' of subsequent epochs. They also mention the star 'Sothis' (Sirius), the planet Venus, and thus prove a certain astronomical knowledge as long ago as the sixth dynasty. The passages and the funeral chambers, with the sarcophagi, the mummies, and the objects originally placed there, have been either very roughly handled or taken away altogether. The *stela* of Una in the Boulac Museum gives a confirmation of the contents of these two pyramids. Una was an official of King Pepi and his son, and executed many important works for them, of which he boasts on his *stela*. The numerous inscriptions cut in the stone and painted green are of the highest importance. They give an exact idea of the theological notions which obtained at this remote period, and at the same time throw new light on the dictionary, grammar, and syntax, and generally on the language and writing, of the most ancient known date of Pharaonic Egypt."

After he had heard to the end Mariette took my hand and thanked me earnestly. "It is worth the Serapeum; but shall I ever see these two pyramids?" I returned again in a day or two, but he could not speak, and on January 18 he passed away.

The following private letter in connection with this subject has been received by a correspondent of the *Times*: —

A good deal of interest has been excited by rumors that "two new pyramids have been discovered." As a pyramid is not of a nature to require discovery, and as in any case it was absurd to call any pyramid new, the French newspapers made fun of the rumor, the more so for a reason which does not appear on the surface. A discovery has indeed been made, and by a German, a near relative of the eminent historian Dr. Brugsch. He has been for some time engaged in researches at Sakkara, and recently dug out the two ruined pyramids marked, if I do not mistake, 1 and 2 on Howard Vyse's plan. Finding they had not been disturbed before, he prudently covered them up again, as he was summoned to Cairo, owing to the approach of M. Mariette's death. He has, however, now resumed his diggings, which abundantly confirm his first hasty observations. The two pyramids are of the time of the sixth dynasty, — the last dynasty, that is, of the ancient Egyptian monarchy. One is the *Men Nefer* (the Good Place) of King Pepi; the other the *Cha Nefer* (Fair Arising) of his son and successor, King Rameren. Both are full of inscriptions of a funeral character, thus differing from the tombs of private individuals of the same period. These inscriptions are likely to prove of transcendent interest to the scientific student, as no other religious writing of the period is known to exist, with the exception of a few brief epitaphs like that of Mycerinus, in the British Museum. It is curious to reflect that during the many years over which M. Mariette continued his researches he never had the good fortune to find the body of a king of the pyramid builders, and that one, if not two, such mummies should be discovered within a few weeks of his death. The only other body of the kind known is that of Mycerinus alluded to above as perhaps the most precious Egyptian relic in England.

I have been told on good authority a story which should be contradicted if it is untrue. You will remember that a few weeks only before the death of M. Mariette, a French commission on antiquities, headed by M. Maspero, made its appearance here. Its arrival was heralded by a flourish in the local French papers, and we were asked to believe that the antiquities of Egypt properly belong to France and Frenchmen, who alone are worthy to elucidate their mysteries. With somewhat indecent haste after the death of M. Mariette, M. Maspero was appointed to succeed him, while Dr. Brugsch, who had for so many years worked with the late Director, and who, of all living men, may be supposed the fittest to carry on his researches, received the empty title and questionable honor of "Pasha." Although for several days no one for a moment doubted that he had, so to speak, stepped into the vacancy, it is now asserted that the French Agent-General was instructed by his Government to demand the appointment of M. Maspero in case there was any hesitation on the part of the Khedive. It is also said that Dr. Brugsch did not ask for the post, which is probable enough, as his claims were too obvious to require restatement. As I have remarked, if it is not true that the French Government were so misguided as to issue such instructions, the rumor should be contradicted on authority. Meanwhile, I am glad to note in the interests of archæology, that Herr Dumichen, one of Dr. Lepsius's best pupils, is about to head a new German expedition to Egypt. I also hear of some Americans who are likely to appear on the banks of the Nile next year; and the prospects of research are very bright, although our own countrymen stand wholly aloof.

THE DETAIL-SHEETS.

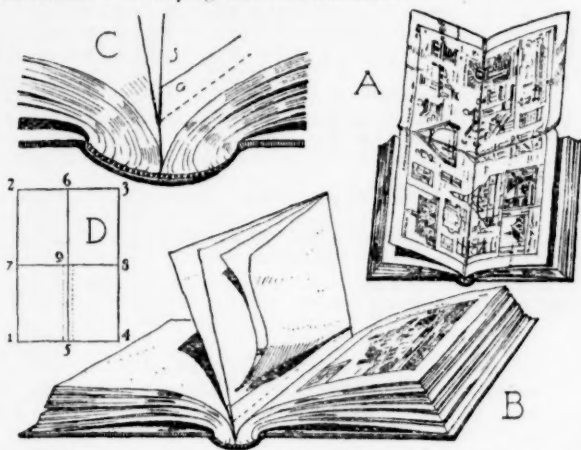
We have received a communication signed by sixteen subscribers, residents of one city, asking us to discontinue the publication of our "detail-sheets" for the following reasons: —

- "1. Those of us who have the journal bound from the beginning are obliged to omit the monthly plates or change our style of binding.
- "2. The plates come folded twice across the centre of the sheet,

thereby injuring the illustrations to a great extent, even if they could be bound flat."

These representations deserve a respectful consideration on our part; the more that the element of personal grievance, so common to most complaints, is conspicuously absent, for not more than three or four of the subscribers have ever favored us with a contribution of any sort.

We fear that our petitioners must have been unfortunate in the choice of their bookbinders, for an inspection of the accompanying diagram will show that it is a very simple thing to bind these detail-sheets in the ordinary form without injury to the appearance of the volume or destroying their own usefulness.



If the detail-sheet is first folded lengthwise on the line 5-6 (Fig. D), and then along 7-9, it will be in form for binding as shown in the sketches A and B. Like all double-page plates it must be mounted "on guards" before binding, and if these guards are attached on either side of the line 5-9 it will then be possible to unfold the sheet out at the top of the volume, the manner of folding precluding all danger of tearing at the angle 9. To ensure against every probability of damage the plates may be "backed" on the lines 6-9 and 7-8 by cloth or strong thin paper.

The second objection which our petitioners urge can be urged with equal propriety against a double-page plate, and experience has taught us that it is rare to find an architect who does not think his own drawing would look better on a double than on a single page, and as it is only fair to assume that our petitioners are as human as the rest of the profession, we may suppose that they too would not object to have a double page allotted to their designs, and hence the second objection seems a little disingenuous.

Still such a petition goes toward offsetting some of the many commendations of this special feature which we have received, and it would be desirable to know whether a majority, or a large minority, of our subscribers disapprove of these detail-sheets.

In defence of our course—if defence be necessary—we will say that although the area of the detail-sheet is not much greater than that of four single pages, yet much more can be got into it because of the greater facility of arrangement and grouping which so large an undivided space affords. There are, too, commercial advantages in this form, not the least of which is the opportunity of advertising it as a special and attractive feature, which those who are not editors and publishers can hardly appreciate. The real *raison d'être*, however, is that the sheet was intended not for the class to which belong our petitioners, but to another class of subscribers which we are pleased to say is daily increasing,—the class of draughtsmen and builders. At the time of initiating the new departure, eighteen months ago, it was felt that architects might not care for this form of illustration, and it was decided that, should this be the case, architects who did not like to hamper their bound volumes with folded sheets might throw away the sheet, and yet have a valuable collection of plates left.

To conclude, we will say, that if we should publish only those illustrations to which sixteen objectors could not be found our expenses would be wonderfully lessened.

NOTES AND CLIPPINGS.

CARBONIC OXIDE AND HEALTH.—Professor Ira Remsen, of Johns Hopkins University, who has been engaged for some time past experimenting on carbonic oxide as a source of danger to health in apartments heated by hot-air furnaces and cast-iron stoves, has finished his investigations, and will report in a few days to the National Board of Health, for which the work was undertaken. Professor Remsen states that he has examined the different methods in use for the purpose of detecting small quantities of carbonic oxide, and then applied the best of these methods to the study of the air of a large number of buildings. A specially constructed cast-iron stove was used in a second series of experiments, and the air of the room in which the stove was situated was examined under different conditions. The results, Professor Remsen states, cannot well be given in a few words, but in general, it may be said that there is practically not much danger from carbonic oxide involved in the use of hot-air furnaces and cast-iron stoves. — *Baltimore American*.

COLOR-BLINDNESS.—It appears from the report presented to a committee of the Ophthalmological Society by its Secretary, Dr. Brailey, that out of 18,088 persons examined (including boys in Eton, Westminster, and Christ's Hospital Schools, and 5,000 members of the Metropolitan Police) the sight of upward of 750 persons was found defective. The average of defects was 12 times as great in males as among females, or 4.76 in the former and 4 in the latter. Among women, also, any but slight cases are very rare. Among men, on the contrary, they form rather less than half of the entire number. Therefore the pronounced cases are at least 2.5 per cent, varying from this number in Eton School and the professional class to more than 3.5 in the police and the poorer schools of London. The main defect in most of the pronounced cases, say in 2 per cent of the whole number of males examined, is an inability to distinguish red from green. Red looks to those so affected as a very sombre color, in all probability as some shade of dark yellowish brown. Green is somewhat similar to this. They see other colors correctly, and by contrast very strongly. Jews are more color-blind than any other nationality, and their defects are usually of the pronounced kind. The members of the Society of Friends are rather more color-blind than the average, though the excess of their defects is principally constituted by the slighter forms of color-blindness,—i.e., an inability to distinguish from each other the paler shades of most colors. Inmates of deaf and dumb asylums are very defective as regards colors. Color-blindness does not mean a want of acquaintance with the names of colors. Mistakes from this cause are avoided by the mode of testing, which consists in giving the candidate a colored skein of wool, green to begin with, and asking him to pick out of a bundle all that are anything like that color (not naming it). No notice is taken of inability to match shades of the same color. People who cannot tell red wools from green also fail to tell a red signal-light from a green. Indeed, they often cannot see the red light at all unless they are much closer to it than to others. Examinations have not been made of railway servants in England till quite recently, and now on many lines the system is imperfect and incomplete. At sea no examination at all of common sailors is made. A collision at sea occurred near Norfolk, United States of America, in 1875, in which ten persons were drowned, owing to the captain mistaking a green light for a red. Five years later he was examined, and found to be color-blind. Dr. Brailey thinks that those who confuse red with green see neither one color nor the other, but in the place of both some neutral shade, such as gray. He thinks that the greater deficiency of Quakers as compared with others is due to the fact that the poorer Quakers especially have been for many generations very ascetic in their houses and dress, avoiding the use of all colors. Also that the Jews have strengthened their defects by the intermarriages which have been always the custom of the race. He observes the natural love of dress and greater precocity of mind at an early period of life has been the cause of greater acuteness of color-vision. — *London Telegraph*.

THE SEVENTH REGIMENT'S VETERANS' ROOM.—Mr. Louis C. Tiffany and several of his company of "associated artists" have recently decorated the Veterans' Room and Library of the Seventh Regiment Armory in a manner which illustrates the advantages and difficulties of associated action in monumental work of this kind. The Veterans' Room is a large apartment occupying the north-west end of the Armory, and the library adjoins it on the south. The general scheme of decoration and the stained-glass windows are Mr. Tiffany's; Mr. Colman advised as to color; Mr. Millet and Mr. Yewell composed and executed a frieze depicting the different chronological stages of the art of war; Mr. Stanford White designed the architectural detail, and Mrs. C. Wheeler the embroidered *portières* and curtains. The decoration is a development of the veteran idea embodied in iron, one may say. Iron chandeliers in scrolls and arabesques depend from massive transverse cranes, iron fillets surround the necks of two groups of pillars that support the mantel, iron nail-heads dot the massive but scanty oak furniture, iron chains are twisted about the lower halves of two large columns that help carry the ceiling, iron plates are recessed at regular and frequent intervals in the high oak wainscoting, and the railing, gratings, and staircase of the library are of the same material. This involves a light and metallic key of color, and accordingly there is an abundance of oak and of silver and yellow stenciling. The ceiling, cut up into innumerable squares by cross-beams of a light brick-red, is yellow with silver arabesques; the walls and upper portions of the columns aforesaid are of the same quality plus a metallic lustre, the forms of stenciling resembling chain-armor; the frieze is silvery in general appearance and the fireplace is a bed of turquoise glass-tiling. The whole effect is metallic rather than rich, and suggests the glitter of tinsel quite as much as the sombreness of veteran armor, though the plates of the wainscoting and the chains wound round the columns are painted into the semblance of rust. Beneath several of the windows the walls are pierced with designs in solid glass lumps that have a color effect, but in general the glass is of the same pale character. The library has tone and sobriety owing to the simply treated mahogany of its shelving, but the ceiling is of a salmon pink varied with silver disks of various sizes, and the hangings of the gallery are leaden rather than blue or green. At night, however, the effect here acquires softness, not to say richness, and in the Veterans' Room the tinsel is keyed up to brightness if not to positive brilliance. There has evidently been no difficulty in harmonizing the work of the different artists, as one might have supposed there would be; when one person undertakes a work of this sort he sometimes experiences trouble in bringing into just relation the details executed by assistants, and *a fortiori* one would think the mere co-operation of "associated artists" liable to discord. The failure is, on the contrary, in the opposite direction. The work is a congeries of harmonious details rather than a whole, and in its lack of impressiveness, or of any quality even remotely related to monumental work, betrays the lack of a single and total conception. The conjoined ingenuity of the several artists has resulted in a refinement of fanciful symbolism instead of a true expression, and one leaves the rooms with the feeling that a great deal of talent and industry has been rather fruitlessly expended upon a work which any one of the artists employed would have made more effective. — *The Nation*.

BUILDING INTELLIGENCE.

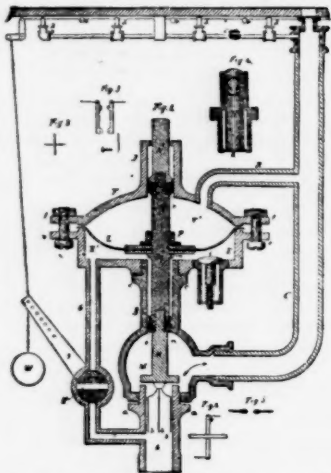
(Reported for The American Architect and Building News.)

[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.]

239,217. **AUTOMATIC FIRE-EXTINGUISHER.**—John W. Bishop, New Haven, Conn. This extinguisher belongs to that class which are provided with means for excluding the water from the building until it is needed, and thus secures the building from any damage which might occur from the leakage of any of its parts, and for automatically letting it into the pipes within the building in case of fire. A is a pipe, which is connected to a street main, and in it the fins b move to steady the valve M and its stem. The pipe B has its lower end enlarged into a form nearly spherical, and is screwed to A. C is the main pipe in the building, into which the smaller pipe on which the distributors are arranged are inserted, and connects with the enlarged part of the pipe B. E is a large cylindrical vessel screwed to the pipe B, and connected to A by the pipe G, in which is the cock K, operated by the weighted arm y. It has the valve i, on the stem of which is a light spiral spring of sufficient strength to keep the valve open when there is no water-pressure upon it. The function of this valve is to let water out of the vessel E in case of leakage. F is a dome-shaped piece which covers the vessel E. From the central part of F extends the pipe D. L is an elastic diaphragm, held between E and F, as shown, through which the stem passes, and divides the chamber into two parts. The valve M closes the pipe A, the end of the pipe being the valve-seat. The stem N of the valve is packed in the pipe B by the packing o, its upper end being threaded. The stem N² is screwed on the upper end of the stem N, and has its lower end packed as shown. It also has a shoulder m, on which a plate rests, between which and another plate of the same size the diaphragm L is held. Its upper end is



threaded and has the collar r, which is packed in the pipe D. The stem N² is screwed onto the upper end of stem N, and projects above the pipe D. To its upper end a fire-alarm may be attached. The pipe R connects the dome-shaped piece F with the pipe C. The pipe C is connected with the pipe C, and on it, or on fittings connecting its parts, the distributors d are arranged. The wire s is connected by joints x, made by a bolt (shown in Fig. 3) of "fusible metal," which melts at a low temperature, passing through holes made in the flattened ends of wire, as shown in Fig. 5. The distributor H, Fig. 4, is a hollow cylinder fitted loosely in the end of the conduit-pipe, has the enlargement h on its lower end, suitable perforations in its upper part, its upper end being closed. Its upper part is soldered by fusible metal to the inside of the conduit-pipe, near its end. In the end of the conduit-pipe (shown in section in Fig. 4) there are two shoulders which limit the motion of the distributor by means of the enlargement on its lower end. The connecting-link, Fig. 3, consists of two strips or bars of metal, hinged at their lower ends by an iron bolt passing through holes in the bars, the upper ends of the pieces being held together by a bolt of fusible metal passing through holes in the upper parts, or the upper parts may be soldered together. The bolt being melted, the connecting-wire is lengthened by the length of both pieces, and the connection is unbroken. The extinguisher being thus constructed, the water coming against the valve M opens it and flows through the pipes C and R into the chamber F, fills the chamber and rises in the pipe C until the water-pressure on the diaphragm closes the valve. To be more explicit: if the area of the valve is a square inch and the water-pressure upon it is forty pounds to the square inch, and if the area of the diaphragm is forty square inches, the water will fill the chamber F and rise in the pipe C until the water pressure on the diaphragm is more than a pound to the square inch, when the water-pressure on the diaphragm will exceed the water-pressure on the valve, and close it. To make

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BUILDING INTELLIGENCE.

a pressure of a pound to the square inch on the diaphragm, the water in the pipe C must rise about twenty-six inches above the diaphragm. When the distributor is liberated by heat, and when any one of the fusible joints in the wire s is melted, the arm y descends and opens the cock K, and the water flows through the pipe G into the chamber F, and creates a water-pressure on the under side of the diaphragm equal to the water-pressure on its upper side, and the water then flows through the pipe C in the same manner as though the devices for excluding the water from the building formed no part of the extinguisher.

242,423. **DOVE-TAILING AND LATHE MACHINE.**—Ebenezer Barrett, Rice Lake, Wis.

242,429. **DOOR-SPRING.**—Theodore Butler, Cleveland, Ohio.

242,436. **FILTERING APPARATUS.**—Parker Wells, Lynn, Mass.

242,438. **ELECTRIC LIGHTING APPARATUS.**—Jas. Bardsley, Akron, Ohio.

242,510. **SLATE ROOFING.**—Henry D. Cordray, Newark, Ohio.

242,549. **HOT-AIR FURNACE.**—George McCord, New York, N. Y.

242,568. **CHAIN BOLT.**—Wm. C. Sparks, New Britain, Conn.

242,774. **BURGLAR ALARM BOLT.**—Theodore F. Wilson, Washington, D. C.

242,592. **SHADE-HOLDER.**—Nathaniel L. Bradley, Meriden, Conn.

242,595. **RIVET.**—Willis L. Brownell, Brooklyn, N. Y.

242,625. **PROPORTIONAL PARALLEL-RULER.**—Joseph Gardam, Brooklyn, N. Y.

242,656. **BIT-GAGE.**—W. Haskell King, Athol, Mass.

242,695. **SASH-FASTENER.**—Isaiah S. Rich, Yonkers, N. Y.

242,716. **FIRE-ESCAPE.**—William A. Thompson, Brooklyn, N. Y.

SUMMARY OF THE WEEK.

Baltimore.

BUILDING PERMITS.—Twenty-five building permits have been issued since the last report, the following only being of sufficient importance to be mentioned:—

Bank of Commerce, two-sty brick building in rear of No. 24 South St., between Second and Water Sts.

BUILDING INTELLIGENCE

Wm. Metz & Co., five-sty brick factory on Saratoga St., between Holliday and North Sts.

Richard Cromwell, two-sty brick building on Fremont St., between King and Pratt Sts.

Thomas Wilson, one-sty brick building (library) on Charles St., north of Saratoga St.

Western National Bank, one-sty brick building on Eutaw St., between Baltimore and Fayette Sts.

Geo. Kirchenhafer, three-sty brick building, s w cor. Eager and Bond Sts.

HOUSES AND HOTELS.—Mr. Samuel Wyman is erecting the following buildings on Park Ave., between Eager and Tyson Sts:—

Two apartment-houses, one 43' front, five stories high, one 24' front, four stories high, brick with stone trimmings.

Eight residences, four 19' front three stories high, four 20' front, four stories high, brick, with stone trimmings.

Hotel, 93' front, five stories high, brick, stone trimmings; Mr. Charles E. Cassell, architect.

Mr. Charles E. Cassell is also preparing drawings for five dwellings on Boundary Ave., for Mr. Wm. Whitelock, to be 19' x 55', four stories high, of brick, with Scotch (red) sandstone trimmings; cost, about \$5,500 apiece.

CHURCH.—The congregation of Chatsworth I. M. Church have decided to erect a new front to their church, s w cor. Franklin and Pine Sts., to be of marble, and cost about \$6,000.

MANHOLE HOUSE.—Messrs. Dixon & Kennedy are preparing drawings for the new Mansion House, to be built on the corner of St. Paul and Fayette Sts., of pressed brick and freestone, and contain 165 rooms.

ENGINE-HOUSE.—The new engine-house for No. 4 Engine Co., B. C. F. D., is to be located on Lexington St., opposite the new U. S. Post-office. It will be of brick and red sandstone, and French Gothic in design. J. A. & W. T. Wilson, architects.

HOUSE OF REFUGE.—The Female House of Refuge have just purchased ground on Baker and Carey Sts., 235' x 390', on which they will erect buildings for their uses. The old building at present on the site will be utilized, and rearranged for the administration department, and a new dormitory for fifty inmates constructed. A large laundry, containing everything necessary for its purpose, will be located near the dormitory. The buildings will be ready for occupancy by fall. Architects, J. A. & W. T. Wilson.

(Continued on next page.)