

BOSTON, NOVEMBER 2, 1878.

CONTENTS.

SUMMARY:—

The Forty-second Street Tunnel. — Faulty Inspection. — Faulty Construction. — Building in Philadelphia. — Mr. Walsh and the St. Louis Custom House. — The Chicago Court House. — Sir Francis Grant	145
THE OPEN FIRE-PLACE. III.	146
THE ILLUSTRATIONS:—	
The Pilgrim Chapel, Brooklyn, N. Y. — House at Oyster Bay, L. I. — Houses near Cincinnati, O. — La Porte Guillaume, Chartres, France	147
CORRESPONDENCE:—	
Letter from London. — Letter from Boston. — Letter from New York	148
TURNER'S ETCHINGS	150
INDUSTRIAL SCIENCE DRAWING	150
COMMUNICATION:—	
A Western Competition	150
THE CASTELLANI COLLECTION	151
NOTES AND CLIPPINGS	152

THE fall of the vaulting of the Forty-second Street Tunnel in New York, has stirred up a great many complaints of the careless inspection under which work is allowed to go on in that city. No doubt the complaints are justified. There is no reason to question the statements that were published, when the first part of the vault fell, — that the bricks were inferior and carelessly laid, and that the mortar did not stick together, — statements which are repeated by persons who have examined the ruins of the part that last fell. The officials of the office of Public Works, driven to choose between an acknowledgment of faulty design and of bad work, naturally say, bad work; but bad work means bad inspection, for the object of inspection is to secure good work. The Department of Buildings is, apparently, no better off in this respect. It is only a month or two since the fall of a new building at the corner of Broadway and Fifty-second streets showed that the inspectors had allowed it to go up with walls thinner than the building laws prescribed, improperly bonded, and without anchors to hold the floor timbers to them. Not the least painful phenomenon in these cases is the audacity with which the culpable persons meet them, — like the examiner of buildings, who in this very case is said to have argued that thinner walls were safer than thicker, because when they fell two bricks might not kill a man, while three would. All this is natural enough in a city where these officials, being appointed simply for political reasons, may be presumed to be inexpert and without interest in any but their political functions. If the people of New York are willing to pay in lives as well as in spoliation for the privilege of this sort of politics, we may hope that their experience will at least look uninviting to other people.

BUT while there is no danger of condemning too severely such slovenly workmanship and inspection, it is not well to let the dust that is raised over these faults conceal the carelessness or the incapacity of the original offenders. At present, attention seems to have been diverted from the faulty design of the fallen tunnel vault. After the first fall the coroner's verdict was, that careless loading by the contractor caused the disaster, and the work was continued substantially on the same plan as at first. Even since the second fall, it is said the engineer in charge derides the idea of faulty construction. He has been dismissed, but unless the essential vice in the design of the tunnel is made known, the lesson of careful construction that the disaster ought to teach, which is at least as important as that of careful inspection, will be lost. The curve of the vault is not only one of small rise, but is of the weakest possible form for its purpose. It is a flat semi-ellipse, or rather a compound oval, a curve that would do very well for a bridge, but is unfit for a vault with a heavy vertical load, the strong curvature being at the haunches, where from the peculiar conditions of the load the pressure is least effective, and the crown being much flatter than the height alone would indicate, while the shell is dangerously thin. We have not within reach such an accurate record of the vault section as would enable us to compute its curve of equilibrium with precision, but a simple calculation will be enough to give an approximate idea of the conditions. The height of filling above the vault is so great, and the additional weight on the haunches so slight, that it would be safe to consider the load as uniformly distributed. In this case the strongest form of vault would be

one of which the curve was a parabola. With the given span and rise a segmental arch would have answered if the shell had been thick enough, but the curve adopted was weakest of all. Taking the parabola, as the strongest, we may compute what would have been the horizontal pressure on the shell at the crown, by the common formula $H = \frac{pa^2}{2y}$, where H is the horizontal pressure required, p the load per unit of horizontal surface, a the span, and y the rise of the vault. Assuming 100 pounds per cubic foot to be the weight of twenty-five feet of filling above the vault, p will be 2,500 pounds. Then for a span of 40 feet, and a rise of 10 feet, we have for each foot in length of the tunnel, $H = \frac{2500 \times 1600}{8 \times 10} = 50,000$. This would have been the horizontal pressure on each linear foot of the shell if the vault had been of the strongest form. The shell being of six courses, or two feet thick, the pressure on the brick work would have been 25,000 pounds per square foot. At the springing it would have been over 35,000 pounds per square foot. Twenty thousand pounds, or ten tons per foot, would be all the pressure with which a careful constructor would have dared to load the brick work which he could expect to get in ordinary contract work under watchful inspection. But with the form adopted for the vault, the pressure must have been much greater than on the parabolic vault we have supposed. In other words, a vault of weak form and bad workmanship was apparently loaded with a greater weight than would have been safe for the same thickness of shell in the strongest form of arch with good workmanship. This allows nothing for the danger of the curve of equilibrium passing outside the safe position, for of that we have no means of judging. A slight yielding of the weak mortar in the joints was enough, under the pressure, to let the flat crown of the arch sag, till, as the earth settled down upon it, it fell through altogether. Here then was an important structure intended to carry a tremendous load, and built in a manner which a little simple figuring would have shown to be foolishly inadequate to its use. But it was doubtless built by rule of thumb, and probably it never entered the head of anybody concerned to use the established means of finding out whether it was fit for its work or not.

IT is the lesson of all this, as of many like disasters, that it is not merely careless building, though that is bad enough, but ignorant building that brings us into trouble. The latter fault is really the more dangerous, because while it is more insidious than the other, it is one great cause of it. The efforts of the people who are responsible for it to put it out of sight ought therefore to be strenuously resisted. The danger is the greater, because, while we are venturing on all sorts of new constructions, we have taken leave of the old-fashioned habits of solid building, and competitions and the system of contract work are forcing the method of building down to the cheapest possible conditions. "Practical" constructors are continually trying to do things they have not done before, and to do them in the quickest and most economical way possible, while they are as innocent as children of the scientific knowledge by which alone such experiments are made safe. In a generation which is covering the country with more important constructions than any before it, the greater part of the persons who are responsible for these constructions may be said not to know that such safe knowledge exists; and the mass of the people whose property and lives are risked by them, are disposed for this reason to deride it as unpractical. It is an injury to the community, then, when complaint of the bad execution of a piece of work, especially if it be public work, is allowed to divert attention from the fact that it has been ignorantly and badly designed.

THE recent gale has taught in Philadelphia something of the same lesson of the danger of unsubstantial building that other cities have been learning from fires and downfalls. More than seven hundred buildings were more or less torn to pieces by the wind, which after all, though a violent gale, was not a hurricane; and in the newer and more slightly built regions whole rows of brick houses were blown down. Such wholesale destruction shows that Philadelphia must have its good share of the bad building that infects all our large cities. It is true that the wind blew very hard, its velocity measuring seventy miles an hour or so; but one of the chief uses of building at all, is to shelter people in rough weather. It is quite possible to make sure in every city, by proper laws and inspection, that all buildings

shall be capable of standing in any weather that is not absolutely unprecedented, just as they can all be made practically incombustible. Philadelphia has the repute of being a more substantial city than most in the country. It has been her boast that more families lived in their own houses there than in any other city, and that tenement houses were almost unknown. This characteristic has some admirable results, but some that are not quite so good. It has encouraged building enormously, and has developed the system of "bonus" building, which was described by a correspondent in this journal not long ago, and than which no greater provocation of rascality among builders has ever been contrived. Philadelphians have been able to rely longer than most of the neighbors on their old traditions of solid workmanship; but no city can live by its traditions in these days, or do without the safeguards of careful laws and stringent inspection. The real trouble here is what it is everywhere, as we have argued above, — a growing ignorance of how to build. Thousands of men are having houses built without knowing what good building is, thousands of mechanics are building houses without knowing how to build good ones. This is due partly to the immense increase of hasty speculative building, partly to the demoralization of the trades, through the influence of trades-unions, the loss of apprenticeships, and other evils. The whole community is getting used to poor work, and a large part of it, the country over, has come not to know that there is any other. A complete remedy is hard to find, but good building laws and good inspection are a considerable part of it.

MR. THOMAS WALSH, to whose troubles as superintendent of the U. S. Custom House at St. Louis we have before alluded, has lately written a long letter to the *Cincinnati Gazette* in answer to the various accusations which have been published against him. The answer consists of general denials of the charges of dishonest dealing in his superintendence of different public works, supported by letters from the persons with whom he was said to be implicated, and what is of more account, from the judges of the County Court, whose architect he was, and from the bench of the State of Missouri. To the principal charges, of collusion with the contractors for the Custom House building which he superintended, his answer is, that after the technical failure of the first indictment against him the matter was dropped by the District Attorney, and no second indictment was ever prepared. The strongest testimonial in Mr. Walsh's favor is the letter subsequently sent to the Secretary of the Treasury, asking for his restoration to the position of superintendent of the Custom House, from which he had been removed pending the trials, and signed by the Chief Justice and Associate Justices of the State, the Circuit Judges, and several other prominent officials. The only things in his case with which the public is concerned, are the accusations about the Custom House; but it is fair that where the complaints against him have been published his answer should be made known. Since the charge of conspiracy with the contractors was not followed up, it may be inferred that the District Attorney decided that he could not sustain it. The question of the superintendence still remains, and we have seen no disproof of the complaints of bad work done or accepted under his supervision, nor does it appear that even the strong request which we have cited, moved the Secretary of the Treasury to reappoint Mr. Walsh.

PERHAPS no building of our day, not even excepting the Washington Monument, has shown anything so nearly like a human instinct for getting into trouble as the Chicago Court House, the divided structure — half city building, half county building — of which our readers have first and last heard so much. After the question of the divided dome had been set at rest, for the present at least, the two architects at last turned into one, and the one material into two kinds of stone for the two halves, — financial troubles have set in heavily. The county having been too embarrassed to furnish money to continue its half, the city has had a chance to try to overtake it, but finds difficulty in providing funds; and now there is talk of reducing the cost, on the city side, by leaving off the upper story, which many people think will be useless. The opponents of this change insist that it will only be putting more money into the contractor's pockets without a proportionate saving in the whole cost; for the builders having contracted for the whole work, will have an additional opportunity to increase their profits by under-estimating the deductions to be allowed for the changes. There are two ways, say they, of increasing a contractor's profits beyond what

his contract allows him, — by extras and by deductions, — and the extras having been tried as long as is safe, the other means will now be a welcome one. It would be hazardous for an outsider to express an opinion on this question, but architecturally, at least, we might expect the city to suffer by the change; the architecture must be very offensive if the suppression of one story of it would atone for the anomaly of making the building, intended to be perfectly symmetrical, a story lower in one half than in the other.

ENGLISH papers tell us of the death of the president of the Royal Academy, Sir Francis Grant. The younger son of a Scottish laird of Perthshire, and educated as a gentleman, he seems to have owed his position as much to circumstances and to a natural cleverness as to the special talent of a painter. He was born in Edinburgh in 1803, and was at first brought up to the law. A passion for field sports diverted his energy from study, and he is said to have deliberately announced his plan to spend his inheritance of fifty thousand dollars in the field, before he set to work to make his fortune as a lawyer. When this was done, however, a natural bent or native astuteness taught him that he could do better as a painter, and at twenty-seven he began painting the portraits of his friends, who were many and influential. His work soon became popular, and he went to London, exhibiting his first picture in the Academy in 1834. In 1842, he was elected an Associate of the Academy, in 1851 a Fellow; in 1866, he succeeded Eastlake in the chair, which had been declined by Landseer, and was knighted in due course. He was an honorary member of the Royal Scottish Academy, of the Société d'Artistes Belges, and of the Philadelphia Academy of Fine Arts. He was a facile and brilliant painter of portraits, but apparently painted little else. The only two other works that we find recorded are two sporting pictures, the "Hunt of his Majesty's Stag-hounds" and the "Melton Hunt." The first of these brought him much distinction and gained a gold medal at the Paris exhibition of 1855; it contained portraits of forty-six noted sportsmen of its day. Except for these his works seem to have been almost exclusively portraits. His gentlemanly address and *savoir faire* lent their character to his painting, and joined with his social position in making him popular, both personally and as an artist, especially as a painter of women. The same qualities won him the presidency of the Royal Academy, a position which, since its duties are as much social as professional, is more apt to be the reward of worldly success than of artistic greatness, as is perhaps illustrated by the fact that four out of six presidents have been fashionable portrait painters. Sir Francis Grant's social tact and popularity shone in his administration of the Academy and in his public bearing as its representative. Mr. Leighton, says the *Builder*, is much talked of as his successor. Mr. Millais, Sir John Gilbert, and Mr. Calderon are also mentioned.

THE OPEN FIRE-PLACE. III.

It is remarkable that, while the open fire-place was one of the earliest contrivances invented to contribute to the health and comfort of man, the upright flue for carrying off the injurious products of combustion should have remained one of the latest.

It is true that the principle of the modern chimney was probably understood long before the practice of constructing it became general, but it was so rare an object, even in the sixteenth century, as to have excited the surprise of Leland, who, speaking of Bolton Castle in his "Domestic Architecture," thus expressed himself: "One thyng I muche notyd in the hawle of Bolton, how chimeneys were conveyed by tunnells made on the syds of the walls betwyxt the lights in the hawle, and by this means, and by no covers, is the smoke of the harthe in the hawle wonder strangely conveyed."

According to Peccet, chimneys appear to have been unknown to writers of the early part of the fourteenth century.¹ But, once introduced, their merits appear to have been rapidly appreciated, since we find it stated that in the reign of Queen Elizabeth, apologies were made to visitors if they could not be accommodated with rooms provided with chimneys, and ladies were frequently sent out to other houses where they could have the enjoyment of this luxury.

Thus the general use of the chimney is quite recent, and it was not until the time of Savot, Franklin, and Gauger, that we have record of any serious attempts to combine the cheerfulness of an open fire-place with the economy of an enclosed stove.

The science of the proper ventilation of buildings is still more recent. "Till the discoveries of modern science," says Dr. Reid,

¹ "L'époque à laquelle il faut placer l'origine des cheminées est assez incertaine; les auteurs du commencement du quatorzième siècle semblent ne les pas connaître. La date la plus ancienne, et en même temps la plus certaine où il ait été question des cheminées, est l'année 1347."

"revealed the nature and composition of atmospheric air, and the reciprocal action that ensues between it and the blood, the architect was, in respect to this question, like a traveller without a guide, and had no distinct appreciation of the position in which man is placed in respect to the atmospheric ocean in which he lives." Even where these facts are understood by scientific men, the great mass of the people still remain in ignorance of them, and the rough treatment to which our lungs are subjected in the form of draughts, poisoning by vitiated air, and sudden changes of temperature, often inducing fatal diseases of the organs of respiration — diseases which might be prevented if the elements of physics and hygiene were more generally taught, — shows how little the value of pure air is appreciated by the public. This want of knowledge and appreciation of the subject explains in a measure why the progress of improvement is so slow. The time has been too short to make men believe that an atmosphere apparently pure and transparent as well as agreeable to the senses, may be filled with the most subtle poison. A hundred years is insufficient to work a revolution in the habits and prejudices of men for the sake of a thing which they can neither see, smell, feel, hear, nor understand.

What progress has been made will be seen from the following historical sketch.

EARLIEST FORMS OF THE OPEN FIRE-PLACE.

In the earliest ages the chimney consisted of the entire house, the fire being built in the middle of the building or hut, and the smoke escaping from the roof, as is shown in Fig. 4. Barbarous as this



Fig. 4. From Viollet-le-Duc.

arrangement may seem, it nevertheless has certain advantages we should not lose sight of in making our improvements. The heat of the fire is utilized to a far greater extent than is the case with that burning under our modern chimney. All the radiated heat is obtained and a large part of the heat of contact of air. As a ventilator it is superior to our modern apparatus, since no impure air can remain for a moment in the room, and the cold draughts entering are not drawn to a single spot limited by the height and size of the mantle, as with us, and being, therefore, less concentrated, are less dangerous.

In its manner of disposing of the smoke it is, of course, inferior, notwithstanding the statement of the owner of the hunter's cabin



Fig. 5. Backwoodsman's Log Cabin.

represented in the accompanying sketch, that the smoke never troubled him in the most unfavorable weather.

A central flue constructed of sticks smeared on the inside with mud or clay, and descending from the opening in the roof to within a safe distance of the fire below would improve the draught and prevent the smoke from blackening the roof, though at the expense of some of the heat.

The next step made to improve the draught by means of a flue, is described by Viollet-le-Duc, in his "Habitations of Man," Fig. 6.



Fig. 6. From Viollet-le-Duc.

But the description must have been purely imaginary, as no evidence exists of the use of such flues at the early age indicated by the writer. The fire was in this case supposed to be built against the wall of the house. Thus a large part of the radiated heat of the fire was cut off and no corresponding change was made to regain the proportion of heat thereby lost.

Gradually, for the purpose of avoiding lateral currents of air, jambs were built on each side of the fire, to direct the air upon the fuel, and the chimney flue was brought down to within a few feet of the fire. By this step another large portion of the radiant heat was lost, and the whole of the heat of contact of air, without an effort to obtain a corresponding compensation.

THE ILLUSTRATIONS.

THE PILGRIM CHAPEL, BROOKLYN, N. Y. MR. J. CLEVELAND CADY, ARCHITECT, NEW YORK.

This chapel is built of Philadelphia pressed brick, relieved with terra-cotta finish. It will accommodate twelve or fifteen hundred persons who have an unimpeded view of the speaker.

HOUSE OF MRS. S. S. ADAM, OYSTER BAY, LONG ISLAND, N. Y. MESSRS. POTTER AND ROBERTSON, ARCHITECTS, NEW YORK.

HOUSES FOR JAMES A. FRAZER, ESQ., CINCINNATI, OHIO. MR. JAMES W. McLAUGHLIN, ARCHITECT.

These houses have recently been built for James A. Frazer, Esq., on Auburn Avenue, at the corner of Evans Street, Mt. Auburn, a suburb of Cincinnati. The bricks are from Newport, Ky. The roofs are covered with Virginia slates, the ridge-crests being of Akron tiles. The stair-cases are of oak, and the remaining interior finish of selected pine, varnished.

LA PORTE GUILLAUME, AT CHARTRES, FRANCE. DRAWN BY MR. JOHN W. H. WATTS.

Chartres is too well known as a city full of interest to the architectural student to need particular description. La Porte Guillaume is situated in the lower part of the city, between the branches of the Eure, a very insignificant but nevertheless picturesque little stream. The subject of the sketch is but one of the many interesting places along its banks.

CORRESPONDENCE.

SO-CALLED QUEEN ANNE WORK. — MR. BURGES'S HOUSE.

LONDON, October, 1878.

Is Queen Anne dead? asks a lively writer in a recent number of *Truth*, as he despairingly bewails her influence in all the English furniture at the Paris Exhibition. However it may be for furniture, after a sincere search about London I am convinced she is dead as regards architecture. Not only is she dead, but so few and indistinct are the footprints the good queen left behind her that almost any foot will fit them, and there are plenty of masqueraders at present capering in them. If the prevailing fashion introduced by the mania for bric-à-brac were called the anonymous style, it would be comprehensible; but then it would not sound so well, and in England, at least, everything is in a name. Anything which is not identified with the late Gothic revival is boldly appropriated for this "pot-pourri" of architecture. Although the spirit of annexation is rampant here at present, I was not prepared for the following proof of it. Wishing to look up what books there were on this Queen Anne style, I went to Batsford's, the architectural book-seller's, — strangely enough his modest shop in High Holborn suffices for the whole London profession, — and there was told: "Oh, we have no books on that style. Our Queen Anne architects take their details from Sauvageot's work on the French Chateaux!" Hence, "Queen Anne," on the *lucus a non lucendo* principle.

Houses however, were built of course, during the reign of this personage; and at Chelsea I found a row of *bonâ fide* Queen Anne houses looking upon the Thames, across a strip of trees and verdure. The striking characteristic of these dwellings in Cheyne Row lies, to use a contradiction, in their unobtrusiveness, — certainly not a quality of their recent namesakes. A plain brick front of two or three stories, with flat, sloping roof and simple cornice, is enriched by a wooden porch with a classic order and delicate mouldings. Nothing could be more simple and commonplace; but there is a decided charm in these quiet homes, which is wanting to yonder block, fortunately for comparison in the extreme present fashion. Their narrow and lofty fronts are carried still higher into exaggerated gables, while tall, narrow windows suggest the view on a back-yard, rather than that across an animated river. The first tendency of this style was in breaking away from the conventional modes of building, to allow common sense to express itself; but the desire to be original — perhaps I should say to be odd — has drifted it far to the leeward. In one group of these houses, by Mr. Godwin, an octagonal front is recessed, so that the side windows, instead of getting a wider oblique view, look upon the wall of the next house. The entablature runs, however, straight along the front of the two houses, and a brick architrave, without suggestion of arch-work, is carried across the recessed corners. Of course there must be a hidden band of iron, but it looks most uncomfortable. In the next street the same architect has just built a house for Mr. Whistler, the painter. As they are both men who are nothing if not original, something extraordinary was to be expected. The first result was so plain and ugly that the Metropolitan Board refused to grant a license for it. It was then ameliorated enough to pass that most tolerant of critics. Its small front door opens directly on a landing of the staircase — an excellent way to break the necks of burglars and of all who are not forewarned that their first step from the door will precipitate them headlong into the large atelier below. Not a bad feature in this latter is the segmental arch which divides one end of the room and the fireplace from the main part. This fireplace is in the present fashion, and has a small opening for the grate, while a wide portion around it is filled with tiles. As is often the case with eccentric designs, practical questions have been neglected; and this first story, really a basement below the street level, has not been protected against the damp, and is found uninhabitable; while the china closet has proved fit only for a coal-bin, and the servant's room has been turned into the former. I quote these details to show where the present tendency to be original at all cost is carrying some of the best known men; for Mr. Godwin, besides being known as the editor of the *British Architect*, has done far better things than these later works. In such a melancholy little house I was not surprised to find on Mr. Whistler's easel "a symphony in blue;" the wonder was that under such positive circumstances it was as vague as this vaguest of impressionists always is.

So much for the bad side which the effort after odd effects has introduced into these latest buildings. But good has come from the increased attention given to brick-work, for "Queen Anne" work abounds in flat pilasters and delicate mouldings in brick or terracotta. The English have hitherto been far behind both the Germans and ourselves in the quality of bricks and the use made of them. There are very few buildings of fine face bricks in London, and their coarse, porous ones, by absorbing soot, add to the dinginess of the city. Now, however, a finer quality is necessarily used in this new style, of which it is fair to mention the best examples. Many of these were built for painters, who are certainly appreciative of "Queen Anne." Away from the everlasting smoke and fog of the city, at St. John's Wood, Hampstead, Chelsea, and South Kensington, many painters have built. Close to Holland Park is a particularly interesting group of new houses, all of them original in design. Val Princesps and Leighton are side by side, in houses designed respectively by Webb and Aitcheson. A few rods off the leaders in

the style, R. Norman Shaw and Stevenson, have built for Colie Hunter and Fildes. Next comes Mr. Burges's house, of which I will speak later, as he would be horrified to be classed with the "Queen Annes," though surrounded by them; for on the other side Watts has a house, by Cockerel. As these men, both architects and painters, if not all academicians, are regarded as the "immortals" of their professions, this group is full of interest, and the houses themselves are picturesque and homelike, and generally entirely of brick. In this same neighborhood both Stevenson and Shaw have built several handsome and characteristic dwellings. The design of one, by the latter, published in the *Builder*, June 4, 1875, gives the best characteristics of the style. It is of brick, five stories, with lofty gable; the ground-floor is recessed, and has slight wooden bay-windows with tiny panes, such as one still sees in such old English towns as Canterbury. A fine business store by the same architect breaks agreeably the classical monotony of the city. From the late Gothic revival we at home are apt to regard London as of that style; whereas it is really the city in Europe where the "orders" are most used and abused. In the city there is hardly any exception to this endless Renaissance reproduction, and the latest are like the first.

Mr. Burges has spared neither time nor expense to make his house artistic, and only half the rooms are finished, so lovingly does he "potter" over the decoration of them. The house is of brick, with stone finish, and is picturesquely grouped, a round stair turret flanking the main gable towards the road. The entrance is at the side through a richly sculptured bronze door. Though he is acknowledged as an authority on decoration I was told to expect the most violent coloring and contrasts, and so was not surprised at the brilliant tints of the hall, which is two stories in height, and is lighted by a large, colored glass window, with full-size flying figures. The stairs start from the hall and disappear into the tower, and then emerge on a balcony above. The library is the only room as yet entirely finished, and is as original as beautiful. To use the last London "art" slang, it is "a symphony in gold." One third the height of the room is taken up by a frieze of the deepest gold, a scroll pattern picked out with red. This would be glaring were it not skilfully led up to by paler tones of gold below. The wooden bookcases are of greenish gold covered with painted figures, in a mediæval style. Where the wall shows it is stamped with a red gold pattern. The ground of the painted ceiling has a deliciously soft, golden tint, and it is hard to realize that this hue comes from contrast, for it is only the natural color of the pine!

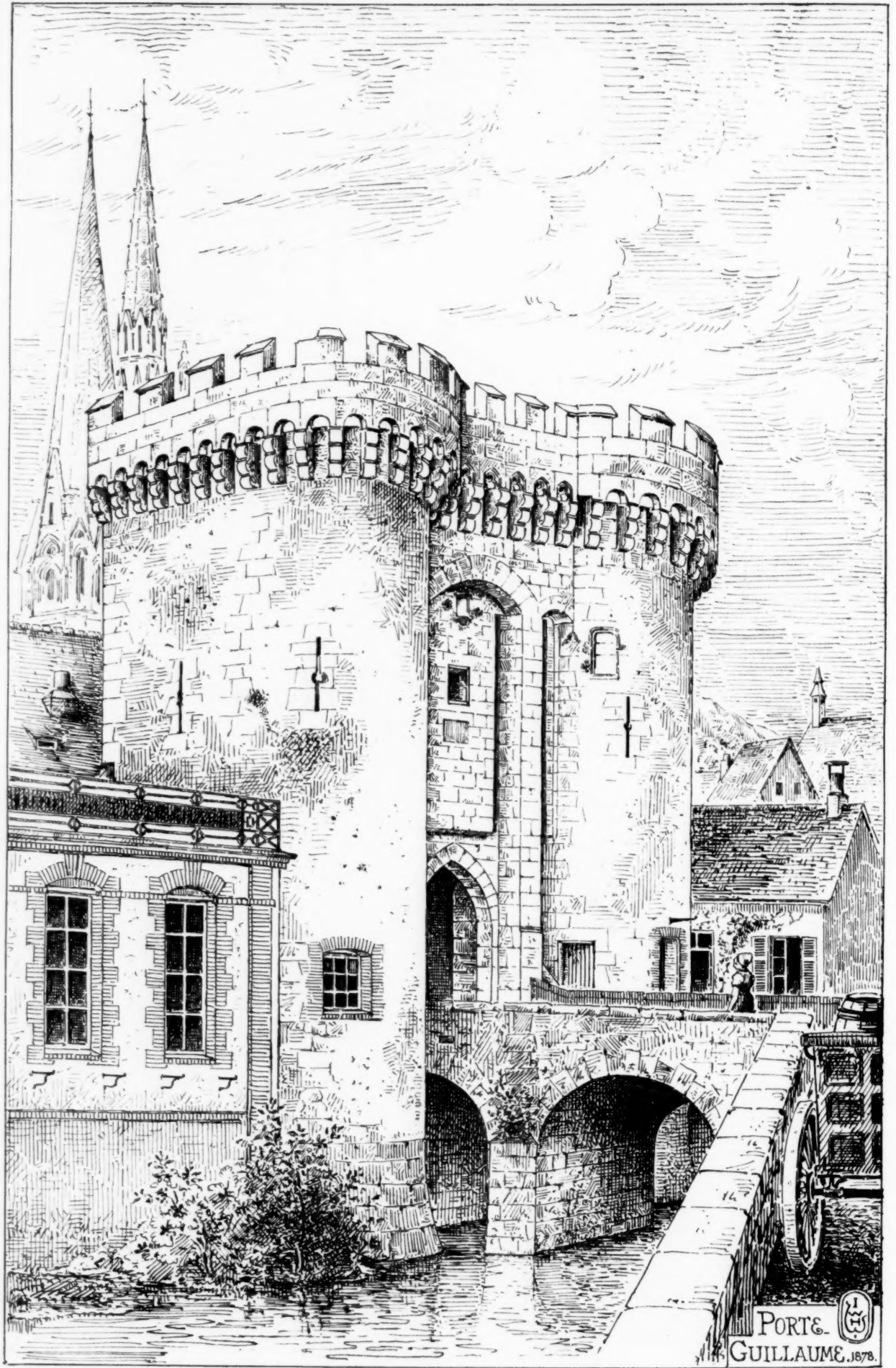
Mr. Burges is full of quaint, mediæval fancies, which peep out unexpectedly on the painted furniture and walls. For instance, the library mantel has a deep frieze of a procession of figures in high relief, which turn out to be the parts of speech before the Tower of Babel driven back by a figure of Grammar. The conceit is ingeniously carried out. Thus two trumpeters, male and female, lead as "the personal pronouns;" behind them is a dog for "it;" after them comes a lady as "the verb," and the pages holding her train are "the articles;" a youth and maiden represent "preposition and conjunction;" at the end is a man starting back for "interjection." These and all the other decorative figures are most graceful and of high artistic merit. The mantel of the next room is admirably sculptured with the "Romance of the Rose." Up-stairs is a mantel with "Jack and the Beanstalk." In the architect's bedroom there is such a flood of color that the ground of the furniture is scarlet, without its appearing too crude. Here fancy has been everywhere at work. Instead of shutters delicate gilded lattices of Eastern design close the windows, and the red marble basin is inlaid with silver fishes. It is this endless play of fancy and his fastidious taste which have, perhaps, kept Mr. Burges from competing more frequently for important buildings. The decoration of St. Paul's was at first confided to him; but on some interference of the committee with his ideas he promptly threw up the whole thing. He has the honor of being the only man in England who has built "a real live" cathedral, that at Cork, in the early French Gothic. His design for the Law Courts was the one most liked by the profession in general; but in the celebrated division of spoils which gave Barry the National Gallery, Waterhouse the Natural History Museum, and Street the New Law Courts, irrespective of their designs, he was left out in the cold. We can console ourselves that our competitions are hardly more unfair than those elsewhere.

R.

THE MASSACHUSETTS CHARITABLE MECHANIC ASSOCIATION'S EXHIBITION. II. (Continued.)

BOSTON.

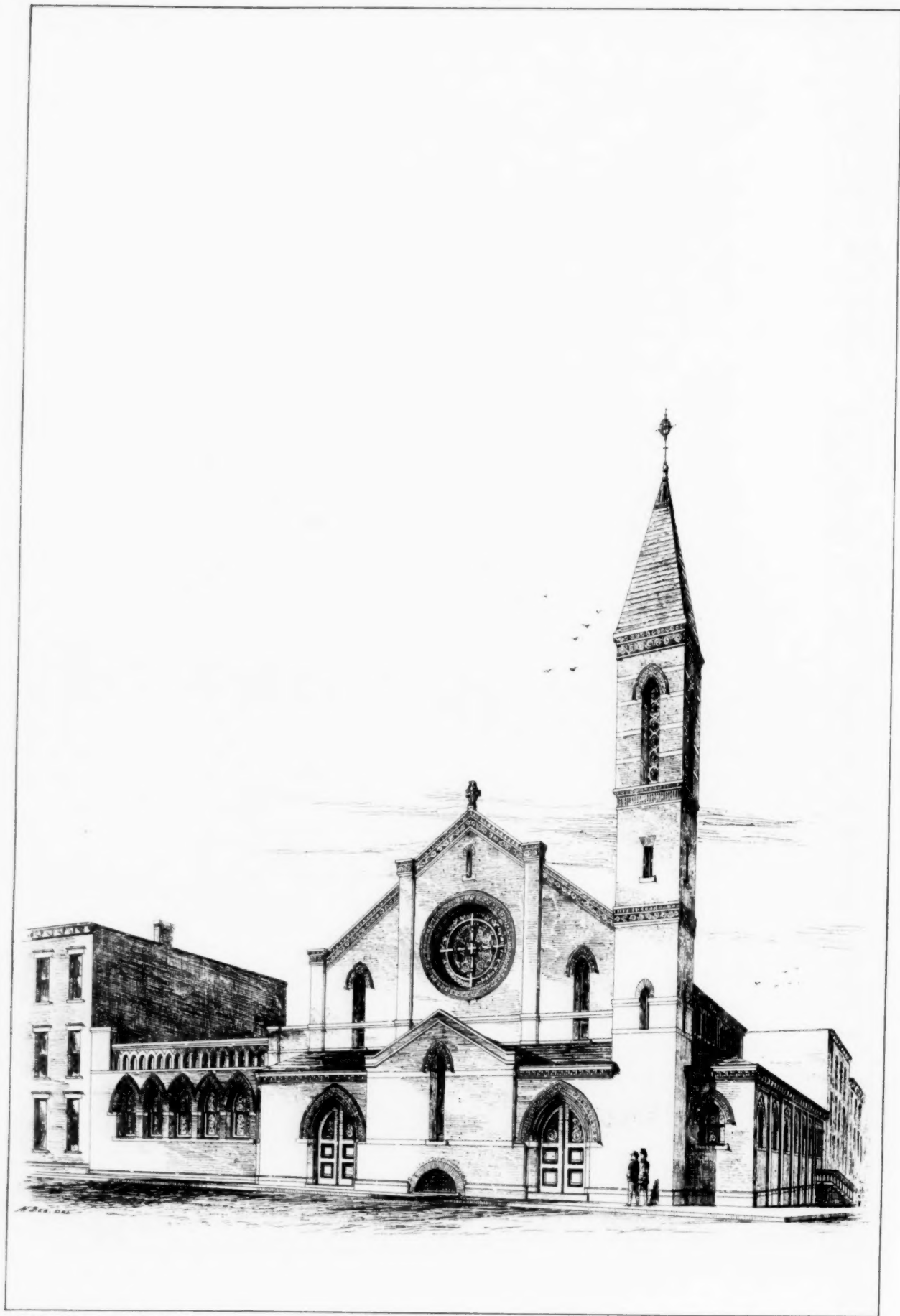
It is good and wholesome for the home artists to see their pictures hung by the side of these masterpieces, and it is no exaggeration to say that the comparison is in many cases extremely creditable. One of the first pictures which catch the eye on entering the gallery is a noble picture of Boon Island Light, by W. F. De Haas. The French rarely paint marine subjects, I believe; at any rate we seldom see them here, — the calm, broad harbors of Ziem can scarcely be called marines, — but after the sensuous glow of Ziem's picture in the great gallery, what a healthy tonic is this of De Haas, with its dark sky and angry sea, and the fierce drive of the surf against the white shaft of the lighthouse. M. F. H. De Haas has two pictures here, of which one, No. 238, is the same for which a medal was awarded him at



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310, Boulevard St. Martin.

CHARTRES. FRANCE.



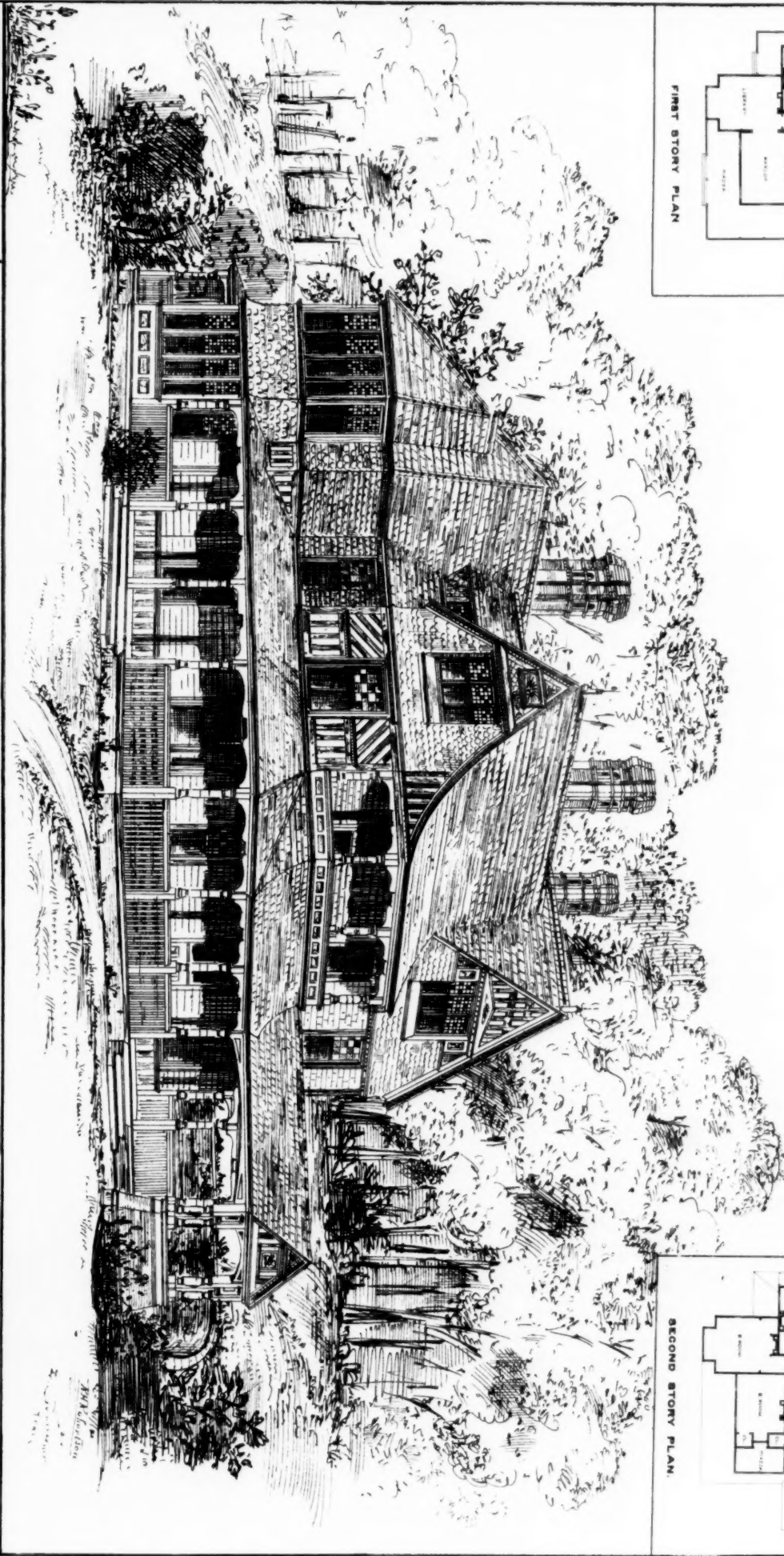
THE PILGRIM CHAPEL, 100 DEAN STREET, BOSTON.

— PILGRIM CHAPEL, —
— OF THE CHURCH OF THE PILGRIMS, REV. DR. STORRS —
— BROOKLYN, L.I. —

J. CLEVELAND CADY, ARCHT.
115 BROADWAY, N.Y.

THE RELATIVE POSITION OF THE BUILDING TO THE STREET

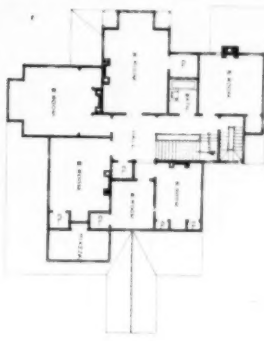
JOHN A. HARRISON ARCHT. & BUILDER
 + House for Mrs. S. S. Adam - Oyster Bay - I. I. +
 50 WILLIAM STREET NEW YORK



FIRST STORY PLAN

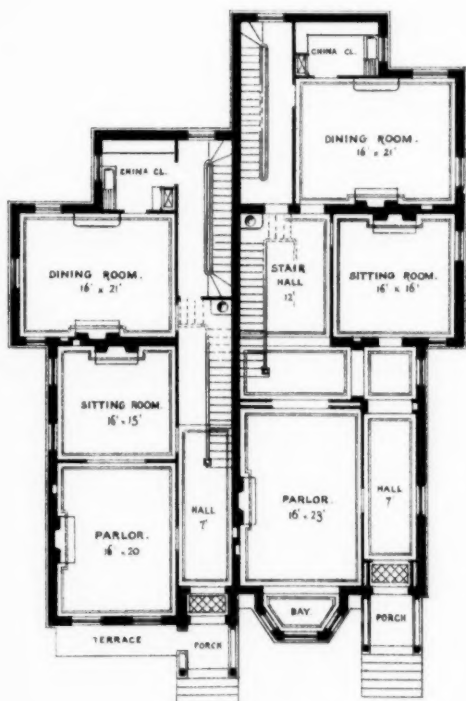


SECOND STORY PLAN

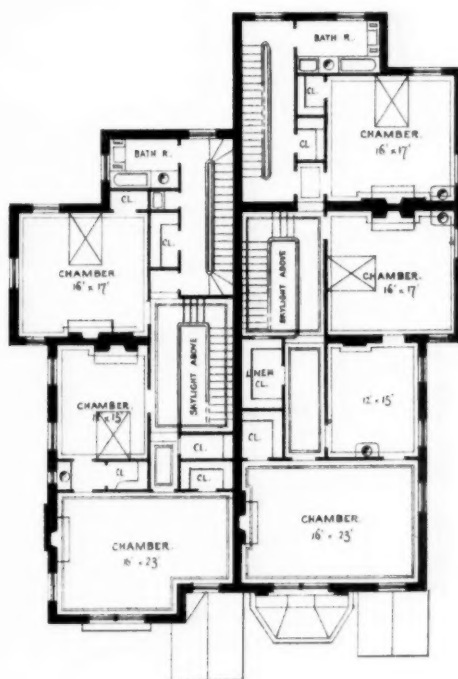




HOUSES FOR JAS. A. FRAZER, ESQ. * CINCINNATI, O. * Jas. W. McLaughlin, Archt.



PLAN OF FIRST FLOOR.



PLAN OF SECOND FLOOR.

the Centennial. These pictures at least cannot be charged with too great a devotion to French methods. No more can those of George Inness, who is liberally represented on these walls. His large picture of the pine grove of the Barberini Villa is here, and makes an imperative demand on the attention, with its group of sloping heads of stone pines, with its hard green turf and its cold sky, and the atmosphere of a New England March. His earlier style, as seen in 247, the end of a thunder shower, is much truer and more impressive; and his later also, as in the landscape No. 270, such a quiet view as one might see in any New England upland town, with no touch of grace added by way of idealization.

Mr. Hunt has a larger number of pictures at the fair than any other artist, and they represent a surprising variety of work, in which, singularly enough, no portrait is included. No. 254 is a noble and solemn rendering of a most poetic subject, "Harvesting at Sunset;" "the earth is dark, but the heavens are bright," and against the gloomy sky stand out, almost in silhouette, the slow oxen, with their loaded wain, toiling along the steep hillside. The charming picture of the bathers, one boy standing waist-deep in the water, and his fellow upright on his shoulders, preparing to dive, is in one of the small rooms, hung rather low, and, as it seemed to me, with not quite as good a light as it deserves. The two pictures of Niagara do not seem very successful in rendering either the grace or the majesty of the great fall, while the mad rush of the rapids above is scarcely so much as indicated.

Mrs. Darrah's fine picture, No. 212, "Gathering Kelp," hangs in what, for most pictures, would be dangerous proximity to the great group of French canvases on the east wall of the large gallery, but it is in no way put to shame by its grand neighbors. It is a very strong and masterly treatment of a difficult subject; the attempt to contrast the sombre colors of the landscape has, perhaps, led the artist to make her sky too uniformly white and cold. Mr. Appleton Brown has four pictures here, of which No. 185, a fine autumn landscape, with a great brown oak, and a plain covered with a low growth of reddening shrubs, with cold clouds drifting above, is quite in the best French manner.

M. Oudinot, a French painter who has come among us to paint and to teach, sends two pictures to this exhibition, of which No. 140 is noticeable, apart from its somewhat singular subject and its resemblance to Corot, by reason of its graceful drawing and its cool, fresh, and sweet color. It is a French country road, shown in sharp perspective, with a thin row of tall trees on the right, through which one sees some cultivated fields and a dark group of farm buildings. The spongy soil of the road, with its deep ruts filled with water, and the grass growing between, are rendered with remarkable truth and beauty, and make one desire to see more of M. Oudinot's work.

Mr. Foxcroft Cole is one of the most conscientious and successful disciples of the French school, and his pictures, of which he has some half a dozen on these walls, are faithful, intelligent, and strong, though they seem to me a little monotonous in subject and treatment, and too uniformly low in tone. The prevailing sombreness of the landscapes makes one breathe a sigh of relief when he catches sight of Mr. Addison Richard's charming little picture of Anne Hathaway's cottage, so fresh and bright and spring-like is it.

The genre painters do not gather in great numbers. Mr. J. W. Champney sends four or five pictures, of which No. 263 is a careful and minutely elaborate piece of painting, called "Lunch in the Field." Another "Lunch," by W. Shirlaw, No. 358, is amusing and clever. The sturdy little maid and her small companions are quite of one mind respecting the duty which is next their hand. In Mr. Beard's picture, No. 184, "Kicked Out," the tramp is immortalized; the inhospitable weather, the pitiless closed door, and the shrug of hard philosophy with which the poor dead-beat gathers himself together and prepares to tramp, uncertain whither, are clever in the extreme, and worthy of a better subject.

Mr. W. A. Gay is represented by three characteristic pictures, "A Coast Scene at Cohasset," a "Forest Interior," and a lovely "Nile View," wherein the foreground is a village on a high bluff, dark and strong in color, with a rude dome rising out of it into the blue sky, while below in the middle distance, the river is seen, and beyond, the distant shore, faint and gray with palm-trees. There are few architectural subjects beyond a Byzantine court-yard by Henry Lealand, not very characteristic, a church interior in North Italy by Eugene Benson, with peasants worshipping, and an interior in the Hotel Cluny by our townsman, Mr. H. P. Clark.

Mr. William Bradford's "Rainbow among Icebergs" is a picture which makes a severe draft upon the faith of the beholder. One is willing to believe in the strange and exaggerated colors of the arctic scenery, but not in the solidity of the rainbow.

In one of the lower rooms is a small but interesting collection of water-colors, mostly English and American, in which there is no extraordinary work, but much that is very good. Some charming drawings of French farm and village scenery by Foxcroft Cole seem to me more interesting than his more elaborate oil-paintings. There are two or three of the exquisite drawings of Miss Bridges, in which the minute pencilling of the grasses and small flowers is carried almost to an excess of poetic delicacy.

These lower rooms form a very attractive feature of the fair. Besides the water-colors, there is a lot of *photogravures* of French pictures, contributed by Messrs. Knodler & Co., of New York, which really need more time than one can often spare in a gallery; a large

collection of heliotype from the Heliotype Printing Company, and another of Albertypes from the Forbes Lithograph Company, which enable one to compare intelligently the results of these rival processes of reproducing engravings and drawings; a few good architectural drawings, among which I remember Mr. Clough's fine perspective of the new buildings for the Latin and English High Schools, some large and well colored perspectives by Mr. Putnam of sea-shore hotels, and a very clever sketch by Mr. Preston of the interior of the Exhibition Building; and a very creditable exhibit by the Household Art Company, of tiles, furniture, tapestry, and vases. Among which are some beautiful wall-tiles, by Minton, of a pomegranate pattern, showing the leaves, flowers, and fruit, on a ground of orange-tawny; and an upright border of tiles from Creil, of remarkable beauty, set in the jamb of a doorway. And then there are the displays of china by the great dealers, and of glassware by the Boston & Sandwich Glass Company. I said, in my last letter, that we can at present only follow the older nations in all matters of art, but we follow pretty close in glass-making, which, if not a fine art, requires at least some of the artist feeling to bring it to perfection. The glass of the Boston & Sandwich Company is exquisitely beautiful in its forms, thinness, and decoration, and some of the ruby and amber ware is superb in color. In pottery, also, Messrs. Jones, McDuffee & Stratton have included in their exhibit some of the productions of Messrs. Robertson & Co., of the Chelsea pottery (why they have not an exhibit of their own is a natural question), which in form, color, and glaze would not do discredit to Doulton himself. Some of their ware has a decoration of an incised pattern, by Fenety, of remarkable grace and originality.

A.

THE ANNUAL CONVENTION OF THE AMERICAN INSTITUTE OF ARCHITECTS. — QUARTERLY REPORT OF THE BUILDING DEPARTMENT.

NEW YORK.

THE prospects are that the Institute Convention next month will be a good working meeting, pleasant and profitable, but without any very sensational features. Messrs. Cady and Robertson, the committee of management, representing respectively the Institute and the Chapter here, have corresponded extensively with different members, and some good papers are promised. One, on Brick Architecture, will be in the very nick of time, judging from the endeavor of many of our metropolitan architects to outdo each other in erecting fantastic things in brickwork. The paper will be a sharp criticism of many of the faults, while recognizing that there is a wonderful possibility of use and beauty in this material. Another topic to be treated in a paper and thrown open to discussion is "The Faults of Modern Architecture,"—broad enough surely to give room for almost endless discussion. The essay will dwell upon the ambitious endeavors of modern designers, in every class of work, and the intense striving after something new; the worship of novelty for its own sake, and the general growth of an unrest in civil, religious, and domestic architecture. The sessions will be held in the Coal and Iron Exchange Building,—a building of Mr. Hunt's design, and as a piece of construction, one of the most perfect in the city. Of its design members can judge when they arrive. The sessions will last two days, closing in a dinner, and excursions to various new and prominent buildings in the city have been arranged.

The quarterly report of the Superintendent of Buildings shows a gratifying increase in the number and estimated cost of buildings erected. The quarter ended on the 30th of September, and is for the dull period of the year, but compared with the corresponding quarters of other years preceding the following table is made up:—

	1875.	1876.	1877.	1878.
Plans filed	161	190	168	154
Buildings embraced	297	315	283	344
Alterations	252	223	219	229
Buildings embraced	290	240	266	258
New buildings commenced	301	305	246	422
New buildings completed	375	239	238	355
Alterations commenced	282	223	238	276
Alterations completed	367	269	307	312
New buildings in progress	746	769	691	836
Alterations in progress	198	143	169	199

In money value the rate is sustained in favor of the quarter just passed, the figures standing:—

Third quarter.	New work.	Alterations.	Total.
1875	\$3,198,870	\$718,485	\$3,917,355
1876	2,817,479	627,213	3,444,691
1877	2,028,175	478,084	2,506,259
1878	3,715,725	585,125	4,300,850

Of the 154 plans offered 124 were passed on first examination; 15 were sent back for alteration, and then approved; and 15 were rejected outright. The 344 buildings included are classified as follows: first-class dwellings, 135; second-class dwellings, 43; French flats, 27; tenements, 72; first-class stores, 5; second-class stores, 8; third-class stores, 8; office buildings, 4; shops, 7; churches, 2;

stables, 15; public buildings, 4; frame dwellings, 14. The churches are small buildings in the upper part of the city. During the quarter 13 buildings have been ordered to demolition, and 232 have been found out of order and made safe. No bad breakdowns have marked the quarter, though in one or two instances haste in rushing up buildings has been checked by crushed and falling walls. The great bulk of the dwelling-house work in all the classes is in the upper wards, where the rapid transit lines are pushing at a steady rate. W.

TURNER'S ETCHINGS.

PROF. C. E. NORTON, of Harvard University, has recently caused to be reproduced, by the heliotype process, the series of thirty-three etchings from the plates of Turner's "Liber Studiorum," with a view to bringing them within reach of students of art, and of schools throughout the country. The reproductions are made for Professor Norton by The Heliotype Printing Company of Boston, and are executed with utmost care, all inferior impressions being rejected. As reproductions they seem to us most excellent; and to constitute one of the most important contributions which have yet been made in aid of useful instruction in drawing. The lines appear wonderfully clear and perfect throughout, and the plates seem scarcely to differ in any respect from the originals, save in regard to that embossed quality of line which the deeply bitten copper gives. But this quality, though it adds great richness and charm to the originals, is not an important one to the student. The etchings themselves are all by Turner's own hand, and consist of the leading lines of the subjects, which were afterwards realized in complete chiaroscuro, by means of mezzotint engraving. The true significance and value of these leading lines, as such, can be recognized by those only who have acquired the capacity to appreciate the qualities which make a line expressive and beautiful; and they are, therefore, like all great work, to be studied before they can be fully enjoyed. In his use of the line Turner is instinctively in accord with all the great masters and schools of past times; and this use of it is by no means confined to these plates of the "Liber Studiorum." It is constant, as a skeleton groundwork, in all his works, — from slightest sketches to highly finished drawings, and large oil-paintings. In these last it becomes effaced, indeed, in all passages where softness of massy form, and mystery of space require it; but there is scarcely a drawing or painting by him in which traces of it do not remain visible, giving firm definition to all salient points. The great mass of his notes and sketches from nature are done in pencil outline, lightly washed with water-color; the firm line and the washed color supplementing each other according to the method which, as we have said, is in perfect accord with that of all the great schools of the past, — and is correspondingly at variance with the loose methods of most modern practice. The methods of the classic schools, — Egyptian, Greek, Tuscan, and Venetian, — are, in this respect, essentially identical and invariable. Through whatever modification of national or individual peculiarity, the order of procedure is always: first, firm outline, second, color, third, chiaroscuro. In the wonderful fragments of Egyptian painting, from the walls of the tombs along the Nile, which are preserved in the British Museum, this order of procedure is perfectly distinct. In all known Greek vase-painting it is the same, so far as Greek painting goes. In early Italian art it is so precisely the same that if one of the Egyptian birds from the British Museum were placed beside one by Benozzo Gozzoli in the Riccardi Palace at Florence, or the Campo Santo of Pisa, they would appear very much like work by the same hand. And in all the Italian painting the same methods hold till the rise of the academic schools, which have reversed ancient principles, given false direction to modern practice, and crippled fine artistic expression ever since. The few painters of modern and recent times, who have achieved anything of permanent excellence, have been mostly those who have eschewed the schools, studied nature for themselves, and drawn independently upon the ancient sources. Turner began to draw upon these ancient sources at a very early period in his career. The bold and careless methods of his first teachers were gradually supplanted by those which were akin to the methods of the old Florentines. In these methods, which became the basis of all his future practice, he went on steadily improving from year to year, until, in the full maturity of his powers, he was able to produce such outlines as these of the "Liber Studiorum."

Nothing, perhaps, could better contribute to the acquirement of the capacity of appreciating, not only Turner's genius, but also the fundamental qualities of all finest art, than attentive study of these reproductions. This study involves immediate reference to nature. When one has made some progress in discovering leading lines, and has become sensitive to those linear qualities which are expressive of essential characters, as, for instance, the energetic growth, elastic spring, and movement of fibre in a tree; of geologic structure, cleavage, and wearing away of a mountain, one will be likely to feel that these characters are wonderfully expressed by Turner in the character of his line; that the seemingly accidental movements of hand are graphic in the highest degree; and that in this graphic expression the economy of touch is as wonderful as any other quality. The master always knows precisely when to stop, so that each line and dot may have its utmost force and suggestiveness.

Then, beyond these graphic qualities, in which a diligent, watchful, and sensitive student may hope, in due time, to attain no mean skill himself, there will be found, in these outlines, expression of

those great instincts of design which mark genius of the highest order. The faculty of dividing a space and distributing quantities beautifully, so that the design as a whole shall be felt to be beautiful, even without regard to what the lines graphically represent. A faculty to be in nowise gained by any communicable code of laws of composition; but one which, when, it exists at all, is always spontaneous and mysterious. In the results of it, laws may be discovered, to which it always works in instinctive obedience, the perception of which may increase our enjoyment, but from which it would never be possible to produce another beautiful thing. Turner is incomparably great as a linear draughtsman; he is great, also, as a landscape painter in all respects; but he is especially great in the quality and range of his designing faculty.

INDUSTRIAL SCIENCE DRAWING.

MR. WARREN'S book,¹ which is one of a series of text-books upon Descriptive Geometry and Instrumental Drawing, is an enlarged reprint of a book published five years ago, the last half of it being entirely new. The original work, if we may judge by what is here reprinted, consisted in an exposition of some of the more elementary conceptions of geometry, expanded over fifty or sixty pages of text. It may not have been without value to students approaching this study without an instructor. The first part enumerates the different ways in which straight and curved lines can be combined. The second treats of solid forms in the same spirit. The reader is then advised to draw things in isometric projection and in perspective, advancing from the geometrical solids to "knives, forks, spoons, castors, tea-sets, tubs, pumps, stoves, pitchers, bowls, cups, saucers, dishes, etc.; . . . and articles of furniture having a geometrical form, such as chests, clocks, work-boxes, book-cases, tables, desks, etc., . . . and such mechanical objects as are accessible, such as railroad chairs, frogs, and switches; grindstones, hay-cutters, bridge-joints; roof-framings, as found in barns, attics, etc."

"By practice," it is added, "the learner will not only learn to make such sketches readily and neatly, which will often be a serviceable accomplishment, but will by degrees collect an album of valuable examples of construction, the exact knowledge of which may be useful." Chapter IX., on Lettering, gives the proportions of the letters of the Roman alphabet with great minuteness of detail, it being said of the letter V, for instance, that its width is just eighteen and a half sixteenths of its height, a fact which has, we may presume, hitherto escaped record.

The third part, which is entirely new, treats of the Elements of Geometrical Beauty, or purports to do so. Here the writer appears to less advantage, being apparently on unfamiliar ground. One chapter is given to the three principles of "Unity, Harmony, and Freedom;" the next to the "Two Radical Geometrical Ideas of Distance and Direction," and to the numbers 2, 3, and 5, and their compounds, as found in the multiplication table. The third explains the arithmetical theory of harmony in music. The remaining forty pages are "based, in general, on the ingenious and presumably correct theory of D. R. Hay." Mr. Hay was a man of genius whose personal influence as a practical decorator is still felt on both sides of the water; and his "Principles of Symmetric Beauty" gives abundant evidence of the vigor and originality of his mind; but our author is probably the only one of his readers who was ever imposed upon for an instant by the brilliant and fantastic speculations with which it is filled. The "egg-forms, derived naturally, and in unlimited variety," which are presented in this work as an improvement upon Mr. Hay's composite ellipse, serve as the *reductio ad absurdum* of his theories.

We have before now expressed our surprise and regret that the house of Wiley and Sons should lend the weight of their name to publications like this, which darken counsel by words without wisdom. Its form is that of a scientific treatise, but it is without substance. It is not fair to the draughtsmen and artisans, teachers and students, to whom it commends itself, for them to lend a hand in bringing it into the world.

A WESTERN COMPETITION.

MILWAUKEE, October, 1878.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

Dear Sir, — The following notice appeared in the columns of the Milwaukee Daily News, the official paper of this county, on the same day it bears date.

Notice is hereby given in pursuance of a resolution of the County Board of Supervisors, of the County of Milwaukee, adopted on the 27th day of May, 1878, that plans, drawings, and specifications, including an estimate of the cost for the erection and completion of a county asylum for the care of insane and inebriate persons in and for the County of Milwaukee, for the accommodation of 250 patients, — such plans, drawings, and specifications to cover a complete building, including heating apparatus and other requisite machinery, — will be received by the Select Committee of the said Board of Supervisors on County Asylum, at the office of the County Clerk, in the Court House, in the City of Milwaukee, until the 17th day of June, 1878, at 10 o'clock, A. M. The architect whose plan shall be adopted will be employed to superintend the construction of the building, and his plan only to be paid for.

Dated, Milwaukee, May 28, 1878.

SELECT COMMITTEE OF THE COUNTY BOARD ON COUNTY ASYLUM.

¹ Industrial Science Drawing. Elements of Plane and Solid Free-Hand Geometrical Drawing, with Lettering, and some Elements of Geometrical Ornamental Design, including the Principles of Harmonic Angular Ratios, etc. For draughtsmen and artisans, and teachers and students of industrial and mechanical drawing. By S. Edward Warren, C. E. New York: John Wiley and Sons.

The time for receiving plans was afterward extended three weeks beyond the date, June 17, as per notice.

The author of each plan appeared before the select committee to give the necessary explanations and answer such questions as might be called forth during the consultations of the committee. The result was a unanimous rejection of four out of the six plans presented, and two reports were made to the board of supervisors, with reference to the two remaining plans, which resulted in the rejection of these also.

A second notice was issued through the official journal, differing not materially from the one given above, with the exception of dates. Near the 20th of September the second batch of plans was presented to the committee, three competitors only appearing. The committee, with creditable anxiety to have things all right this time, selected two experts to whom the plans were submitted, and who gave them most careful consideration. One plan out of the three was decisively rejected as being wholly unfitted for the purposes. The remaining two (being by the same two architects who were most successful in the first competition) were strongly recommended by the experts, either one being pronounced admirably calculated to carry out the best idea of an asylum for the insane. Particular points of excellence were noticed in each one, offsetting points in each that were capable of improvement, one defect simply being discovered in either. The committee were divided as before, on the merits of the two plans, but a vote of the board resulted in obtaining a majority in favor of one of them, the vote standing ten to eight. A provision in the law of the State of Wisconsin, empowering counties to build asylums, stipulates that the plans adopted by the board of supervisors must be submitted to the state board of charities, and also to the governor of the State, for approval. This has been done in the present case, and on October the fifteenth, the plans of H. C. Koch & Co. were finally adopted by the board of supervisors, who have authorized the committee to advertise for proposals for building the aforesaid asylum, and also to make a contract with H. C. Koch & Co. for the plans, specifications, and superintendence of the buildings of the proposed asylum.

This particular mention of the matter would hardly be called for, to occupy room in the *American Architect* (although a very long story is told as briefly as possible), were it not an additional evidence of the improper methods employed in obtaining plans for public buildings. The prevailing notion is—as shown in the laws which empower States, counties, and cities to levy taxes and erect public buildings—that any body of men are capable of procuring suitable plans and passing judgment upon them, whatever may be the purposes of the building for which they are intended. Until the public is educated out of such a fallacious notion, similar follies will be again and again repeated.

This board of supervisors of Milwaukee affords a fair example of the average bodies of men usually intrusted with such matters. About one half of them, in this instance, representing the townships in the county, are farmers; the remainder, representing the city, consists of two commission merchants, one picture-frame maker, one retired farmer, one retired dry-goods dealer, one sailor, and one solitary mechanic, a journeyman stone-cutter. These are all worthy men, fitted for their own callings by nature and experience, and manage the county business passably well. What private citizen, however, would intrust them with a commission to provide plans for his own buildings for any purpose? Yet our wise legislators empower these men to provide a hospital for two hundred and fifty unfortunate lunatics. Happily in this instance a combination of peculiarly fortunate circumstances have given this county the benefit of a very excellent plan, but it is questionable if after all the delays and discussions upon the merits of it, there are three men in the board who have a correct and intelligent comprehension of its essential features of adaptability for the purposes designed.

Competition may seem to be a very excellent method to those who do not compete, but its effects are pernicious in many directions upon those who do, and the results of competition generally partake more of the devilish than the divine. B.

THE CASTELLANI COLLECTION.

THE Castellani collection, recently exhibited and offered for sale in New York, was formed by an experienced gentleman with intent to dispose of it, if possible, as a whole. His price was £30,000, or \$150,000. Failing to sell it as a collection, the owner offered it for sale by auction in Paris, on the 27th and 29th of May last, during the exhibition which attracted thither representatives of art lovers from all the world.

This collection is so well known here that it is unnecessary to describe its character. It was especially valuable for its fine examples of Gubbio lusted wares, having also a few renowned specimens of other fabrics. Long known to collectors, it was expected that the "fancy specimens" would elicit active competition, and they did so. While the general run of prices was greatly lower than the experienced possessor had anticipated, there was, nevertheless, a marked advance over previous sales, and the distinction of two classes which we have before indicated was remarkably demonstrated. The possessor, after deducting expenses, realized from the sale considerably less than half his price for the collection as a whole. Of the amount realized, a very large proportion came from a very small number of pieces. Our notes are based on a priced catalogue sent

us by a friend who attended the sale, and whose accuracy we have no reason to doubt.

As American readers are familiar with the Metropolitan Museum of Art catalogue, and as a number of pieces were assigned in the French sale catalogue to different factories from those to which Signor Castellani had assigned them in the New York catalogue, we refer to the pieces as described in the latter. The sale included nominally 540 specimens (one or two unimportant pieces, however, seem to have been omitted from the French catalogue, and only 339 were sold); of these 138 were Gubbio lustre, and these brought just about one half the total amount realized. In round numbers the sale realized for the whole collection 406,000 francs, or say \$81,000, of which Gubbio wares brought about \$40,000. The average price of the Gubbio specimens was not far from \$300 each. This high average was due to about seven specimens out of the 138, which brought nearly one third of the total realized for all the examples of this factory.

In the entire collection there were fifteen pieces which brought 155,000 francs out of the total of 406,000.

Possessors of the catalogue will be interested in noting these high-priced pieces, as follows:—

No. 11.	Della Robbia	4,600 francs.
" 33.	Caffaginolo	10,100 "
" 34.	"	9,200 "
" 59.	Gubbio	15,000 "
" 61.	"	15,500 "
" 62.	"	5,700 "
" 64.	"	11,500 "
" 66.	"	5,050 "
" 90.	"	4,600 "
" 116.	"	5,700 "
" 269.	Urbino	20,000 "
" 293.	"	25,000 "
" 294.	"	13,500 "
" 295.	"	10,000 "
" 339.	Florentine porcelain	10,000 "

There is, notably, very little gradation between the 5,000 franc pieces and those sold for 10,000 and upwards. Deducting the seven high-priced pieces, the average price of the Gubbio specimens was not much in advance of the average in the Soulages collection.

By way of contrast with the highest, it may be interesting to note a few of the lowest prices of Gubbio lusted wares.

No. 50.	Deep dish	\$46.00
" 54.	Tazza, signed by Giorgio	59.00
" 102.	Cup. St. Jerome; signed by Giorgio	42.00
" 120.	Plate Giulia	22.00
" 134.	Cup	15.00
" 158.	Scodella	12.00

It is useless to discuss or attempt to explain the arbitrary rules which guide collectors in paying high prices for some specimens of Majolica, and we repeat the warning against any attempt to estimate the value of other specimens from price catalogues. When a particular specimen has obtained a reputation as a great work, or a rare work, and comes into a sale, the mere desire to possess it as a triumph over other collectors runs it far above any just estimate of its value. There were specimens in the Castellani collection which, judged by accepted rules of beauty outside of Majolica collections, ought to have brought the highest prices, which sold for a few dollars, and other specimens, which by the same rules were monstrosities, and brought thousands of francs.

There were twenty pieces of Castel Durante wares sold, at an average of about \$125. The highest price (\$460) was paid for No. 190, a cup on a stand, and the lowest (\$35) for a pair of Albarelli, numbers 201 and 202.

Twenty-three pieces of Caffaginolo work averaged \$300. This high average was due to two plates, No. 33 and No. 34, which brought respectively \$2,020 and \$1,840; as much as all the other specimens together. Forty-nine pieces of Urbino were averaged about \$375. This high average was also due to two renowned specimens, No. 269, the portrait of Charles V., sold for \$4,000, and No. 293, a historical basin in shape of a turtle shell, sold for \$5,000, the highest price realized for any one piece in the collection. The Roma specimens averaged about \$40. The Castelli wares, ranging from \$5 to \$160, averaged about \$72.

The most striking feature in this sale is the great advance indicated in the prices paid for what we have called "fancy specimens." The highest price paid at the Bernal sale was about \$1,000, while the highest price at this sale was \$5,000. This is due to the sharp rivalry among wealthy collectors, who direct their attention almost exclusively to what may be called extraordinary specimens. —W. C. *Prime in the Art Interchange.*

A NEW FORM OF METALLIC COPPER. — The existence of an allotropic modification of copper, distinct by its physical and chemical properties, has just been established by M. Schutzenberger, who has described those properties to the French Academy. — *Comptes Rendus.* The surest way of obtaining it is by electrolysis of a ten per cent solution of acetate of copper, previously boiled some minutes to expel acetic acid and render it slightly basic. Two Bunsen or three Daniell elements are used, and all rise of temperature in the bath is avoided. The electrodes, platinum negative, copper positive and larger, are arranged parallel about three to four centimetres apart. The face of the platinum next the copper is then covered with allotropic copper, while the other face receives a thinner deposit of ordinary copper. The new form has a bronze appearance, with metallic lustre, slightly rugose surface; it is brittle, and can be bruised to impalpable powder in an agate mortar. — *Engineer.*

NOTES AND CLIPPINGS.

We desire to call attention to an advertisement which will be found on page vi wherein it will be seen that our publishers give to new subscribers for 1879, paying before December 15, 1878, the nine numbers for November and December next.

CINCINNATI SCHOOLS OF ART.—The places of instruction in drawing and the various forms of art in Cincinnati seem to call for some notice in this journal, and the information may be of interest to our readers.

Drawing is taught in all the public schools, and has been for some years past. Mr. Arthur Forbriger is principal, and has four assistants, who divide their time between the various schools. There are about 2,000 scholars taking lessons in drawing. The Mechanics' Institute has classes for instruction in drawing, and is divided into five different departments, viz.: the architectural, Messrs. E. Anderson and Theodore Richter, instructors; mechanical, Messrs. E. Lietze and Geo. Wadman, instructors; artistic, Messrs. M. Gindelin and W. R. McComas, instructors; modelling, Mr. C. L. Fettweis, instructor; life class, Mr. C. T. Webber, instructor. At present there are enrolled for the coming session in the architectural department, 54; mechanical, 75; artistic, 46; modelling, 10; life class, 16. Total, 201. This number, no doubt, will be increased, as the school has but just opened. The whole school is under the charge of Mr. John B. Heich, as principal. Its sessions are held every Tuesday and Friday evening, from seven to nine o'clock, for four months during the winter. An admission fee of \$3.00 per session is required from the scholars; not to pay the expenses of the school, since these are many times beyond the receipts, but is charged as giving to the scholars a greater incentive to activity. Drawing has lately been introduced into the night Public High School, on a very extensive scale, and is in charge of Mr. Henry Millward, Mr. Ficke, and Miss Sullivan. There are over 150 scholars enrolled for drawing alone. The scholars in this school belong to the working class, and the instructions they receive will no doubt be felt, in course of time, on the entire community. There is yet another school devoted to the study of art in all its branches, and holding both day and night sessions,—the Cincinnati School of Design, under charge of Prof. T. S. Noble, of which we have not as yet the statistics.

THE OLDEST HOUSE IN AMERICA.—The old Horton House, at Southold, Suffolk County, N. Y., is said to be the oldest house in America, having been built by Barnabas Horton in 1639. A portion of it (the east end) was selected later for the use of the Court of Sessions in the East Riding of Yorkshire on Long Island. This Yorkshire and its Riding with the Court of Sessions were established by the Duke's Laws in March, 1665. The judge's bench remained in the house until a few years ago. The old house has recently been sold to Mr. Amos L. Sweet, who intends to take it down and build a new one on its site. The residents of Southold and its vicinity, as a fitting ending for a famous building, arranged for an evening entertainment. Antique furniture, household goods, kitchen utensils, implements of domestic industry, cranes, trammels, spinning-wheels, ancient chairs and tables, were gathered from every part of the county, and the ladies who served the tables dressed in the costumes worn two hundred years ago.

MAKING PENCIL MARKS INDELIBLE.—Pencil marks are made indelible, says the *Papier Zeitung*, on paper prepared as follows: Any ordinary drawing paper is slightly warmed, and then rapidly and carefully laid on the surface of a bath consisting of a warmed solution of bleached colophonium in alcohol, until the entire surface is moistened. It is then dried in a current of hot air. The surface of the paper becomes smooth, but readily takes the impression of a lead pencil. In order to make the lead pencil marks indelible, the paper is warmed for a short time on a stove. This method may prove valuable for the preservation of working drawings when a lack of time will not permit the draughtsman to finish them in ink.

CLEOPATRA'S NEEDLE.—It is said that the total cost of setting up Cleopatra's Needle in London amounted to \$75,000, of which \$50,000 was given by Doctor Wilson, and \$25,000 by Mr. Dixon.

MONUMENT OF WILLIAM III. OF PRUSSIA.—The monument of Frederick William III., father of the German emperor, just unveiled at Cologne, is one of the largest colossal equestrian statues ever cast, being twenty-two feet high, with pedestal figures averaging from nine feet to ten feet, and commemorates the embodiment of Rhineland, as well as the king who accomplished it. Figures of Blücher and Kleist, Bülow, Hardenberg, Arndt, Wilhelm von Humboldt, Alexander von Humboldt, Niebuhr, Gneisenau, and others surround the granite base. The monument is the work of the Berlin sculptors Blaser and Calendrelli, weighs 76,670 pounds, and cost \$112,500, which was raised by a Rhenish subscription in 1865.

MONUMENT TO MERCATOR.—At Duisburg, Rhenish Prussia, has lately been unveiled a memorial of Garhardt Kremar, commonly known as "Mercator," author of "Mercator's Projection." Born of German parents in Flanders in 1512, he settled in Duisburg in 1562, and died there in 1594. The first stone of the monument was laid in 1869, but lack of funds delayed its completion.

STATUE AT KIEL.—A statue has been erected at Kiel to Jens Lornsen, a jurist, who was born in the Island of Sylt in 1793, and died on the banks of the Lake of Geneva in 1838. His pamphlet of 1839, advocating complete autonomy for Schleswig-Holstein, caused him dismissal from office and a year's imprisonment, after which he died a broken-hearted exile. He is now honored as the proto-martyr of Schleswig-Holstein.

SAFETY OF RAILWAYS.—The *Annales des Ponts et Chaussées* has just published some statistics which show that a person had in France, in time of the diligences, a chance of being killed in making three hundred thousand journeys, and a chance of being hurt once in making thirty thousand. On the railways, from 1872 to 1875, the chances were reduced to one death in forty-five million of journeys, and injury in one million.

FIRES IN CHIMNEYS.—At the meeting of the Société de l'Encouragement, of France, M. Paliard read a paper on Sulphide of Carbon as a Fire Extinguisher for Burning Chimneys. The products of combustion are sulphurous acid gas and carbonic acid gas; there is no necessity to plug the chimney, and the cost of the sulphide is trifling. The firemen of Paris are stated to be expert in its use, and to have used it in January last in 32 out of 51 fires; in February, in 81 out of 103 fires; in March, in 138 out of 165 fires; or in 251 out of a total of 319 fires, the extinction being almost instantaneous.

SYMPATHETIC EXPLOSION OF MARINE TORPEDOES.—In a general sort of way it is known that dynamite torpedoes of from one hundred to two hundred pounds will ignite one another if sunk in ten feet of water, at intervals of three hundred feet, when one of them is exploded. Gun-cotton torpedoes are considered to be somewhat less sensitive. It is upon this fact of the communicability of ignition from torpedo to torpedo that the method of clearing a channel of torpedoes is based. A pinnacle taking along a bundle of insulated electric wires starts from a vessel to the place where the torpedoes are supposed to be laid. Near the first torpedo a charge of dynamite or gun-cotton, connected to the electric wires, is dropped from the pinnacle, and when the pinnacle has retreated sufficiently far the charge is exploded, with the effect of discharging the sub-marine explosives in the neighborhood. Nothing very accurate has as yet been ascertained with regard to the influence of depth of water, character of the explosives, etc., upon such countermining. The experiments at Portsmouth, England, on September 3, were rather of the nature of a sham battle than a thorough test of the conditions under which a channel protected by torpedoes can be cleared and safely entered by a fleet. But, doubtless, less showy but more useful methods will, by and by, determine the exact value of torpedoes for defensive purposes.

DISCOVERY AT OLYMPIA.—A great marble bull has been discovered at Olympia in front of the Exedra of Herodes Atticus. On it is an inscription that Regilla, the wife of Herodes, presented it for the conduit built by her husband.

DEPTH OF LAKES.—The Bavarian *Courier* publishes an interesting comparative statement of the depth of lakes. Among European lakes the Achensee, in the Tyrol, heads the list. At some points the depth of this lake amounts to 2,500 feet. The greatest depth of the Lake of Constance is about 975 feet, that of the Chiemsee about 458 feet, and that of the Walchen and Königssee, 611 feet. The measurements made about 1870 at the Red Sea showed that at its deepest part its depth is 1,836 feet; but if we consider that the level of this lake is already 1,394 feet below the level of the Mediterranean, then we find that the total depression in the soil here amounts really to 3,230 feet. The Lake of Tiberias is extremely shallow in comparison; on its eastern part the average depth is only 26 feet, while on the western side it lies between 19 and 22 feet. In Lake Baikal depths have been found which, for a lake, are utterly astonishing. In the upper part of the lake the depth is 10,800 feet (about the height of Mount Etna), but downward the bottom constantly descends, and near the opposite bank the depth amounts to 13,230 feet. The depth far exceeds that of the Mediterranean Sea, which, at its deepest part, measures only 7,800 feet.

A POLAR BALLOON.—A scheme has just been proposed by M. Émile Pagan, a Belgian, for reaching the North Pole in a balloon. The aerial machine, which is of a special form, will be used as a sailing vessel as far as the eighty-fourth parallel. There he will fill his balloon, of a capacity of 2,500 cubic metres, with pure hydrogen, which he will make in the arctic regions with 14,000 cubic metres of sulphuric acid and 5,000 of iron filings. He will be supplied with boxes of preserved meats, biscuits, bottles of brandy, alcohol, etc., which when emptied he will throw overboard as he advances toward the pole. The car will serve him, according to circumstances, as a sledge or a boat.

AN INSTANCE OF ENGLISH VANDALISM.—An English tourist-mob has broken into the Louvre and smashed a vase. One James Oldsen was in the second room of the Musée Campana, looking at the objects in terracotta, and enjoying the solitude of the place, when a crowd of two hundred tourists, led by a man who spoke broken English, rushed in helter-skelter. Suddenly James aforesaid heard a faint shriek, succeeded by a crash, and lo, one of the two large vases from Cyprus, between four and five feet high, which he had been admiring, had been pushed over from its pedestal, and lay in a hundred pieces on the floor. The custodian was quickly on the spot to protest against the destruction of an art treasure. This was one of those "personally conducted parties" which advertisements have commended to the public of all climes, and the cicerone was equal to the occasion. "Well, it cannot be helped, but I cannot have my party interrupted in this manner; we are already late. You know me, you know Mr. —; send in your bill, but I won't have my party interrupted any longer." So the crowd swept on. Presently the *chef* was on the spot; he ordered the fragments to be collected in a basket, and in a few minutes a vacant pedestal was the only thing to show that a treasure which had escaped for centuries the vicissitudes in its own country, and the perils and destruction of revolution and commune in the land of its adoption, had fallen at the hands of English travellers. James followed the mob, and only heard the guide remind his people that every picture in the Salon Carré was a masterpiece, and that "that one by Murillo" had cost \$25,000. Four stragglers, standing before Teniers' "Kermesse," were amused by the antics of the Dutch boors at the country fair, and the eldest of the group, in order to emphasize the remark, "By jingo, these two are having a foine toime of it," actually gave the painting a rap with his walking-stick. — *The London Times*.

A LAVA BULWARK.—Professor Palmieri, of Naples, is constructing a bulwark of scorïe around the observatory on Mount Vesuvius, capable of offering considerable resistance to the flow of lava should it come in that direction.

AN INSPECTOR OF PLUMBING.—The reputable plumbers of the city of Baltimore intend to ask the city council to appoint an inspector of plumbing.