

THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. VI.]

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[No. 203.]

BOSTON, NOVEMBER 15, 1879.

Entered at the Post Office at Boston as second-class matter.

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THE programme for its school-house competition published by the *Sanitary Engineer* offers four premiums, amounting in all to five hundred dollars, for designs for a Public School Building to contain eight hundred pupils, boys and girls in equal numbers, and to occupy a lot one hundred feet square enclosed by buildings on three sides and open on the north. The building is to be of brick, with timber floors and fire-proof staircases, and separate entrances and class-rooms for boys and girls. It is to contain an exhibition room large enough for all the pupils, two teachers' rooms, each of one hundred and fifty feet area, with class-rooms enough for all the scholars, the boys and girls being separated, and each room containing fifty-four or fifty-six. The points which the judges are to consider in making their award are: (1) Convenience of arrangement; (2) security from fire and means of egress; (3) distribution of light; (4) ventilation and heating; (5) drainage and other sanitary appointments. The designs are to be sent, under motto, to the editor of the *Sanitary Engineer* before two o'clock on the 2d of February. They are to include ground plans, one geometric elevation, and one or two sections as the design may require, all to be rendered in line with pen and ink, without shading or tinting except the usual tinting of the walls, floors, and roofs on plans and sections. The committee of award will be Mr. George B. Post, architect, of New York; Dr. John S. Billings, U. S. A.; Hon. John D. Philbrick, U. S. Commissioner of Education at Vienna and Paris; Mr. William R. Ware, Professor of Architecture in the Massachusetts Institute of Technology; and Dr. C. R. Agnew, of New York. The committee are expected to render their decision a fortnight after the plans are submitted, and besides the four premiated designs, the six which are next approved will be published in the *Sanitary Engineer*. All the designs will be returned to their authors.

THIS programme is considerably arranged with an eye to giving the competitors the minimum of work consistently with its purposes, while it rules out the special tricks of rendering by which some competitors try to give their designs a factitious advantage over others, — tricks, to be sure, which would have little chance of effect on the particular committee to whom the designs are to be submitted, — and it gives a reasonable time for preparation of the designs, with allowance for the necessary preoccupations of competitors. In these respects it is an excellent example, and we trust that it may have a wholesome influence on the projectors of other competitions. The premiums offered will not be a great inducement except to draughtsmen and unemployed beginners; but the case is not one of a client or committee requiring plans for actual service, and therefore to be expected to pay a fair price for benefit received, while the problem is one of so much importance, the study and discussion of it so much a matter of public spirit, that we hope men of experience will be tempted to contribute their plans from interest in the subject itself. The competition will doubtless be followed, as was the previous one, by a public exhibition, which is much to be desired as a stimulus to public interest in the subject, as a means of making public the lessons which are to be derived from the plans, and also to give the competing architects a

chance to show what they have done. The architecture of the designs is not made one of the points by which the committee's award is to be determined, as was natural enough, this not coming within the scope of the *Sanitary Engineer*. It will be impossible, however, for an architect to design a building without giving heed to its architecture, however simply he may treat it: with a public exhibition before their eyes it may be hoped that the competitors will offer designs that shall be worthy of notice in this respect, and that the committee will find occasion to take this into account in their report if not in their award.

THE number of scholars for whom accommodation is required by the programme seems to us altogether too large. No doubt this and the size of the lot were fixed upon as answering to the ordinary conditions of school-houses in great cities. But this is just one of the points where the ordinary conditions of school-houses want overhauling. No one thing in our school system, we believe, leads to greater immediate danger in case of disaster, or indirectly to more evils in association and management, than the hiving together of whole townfuls of children in a single building. Half the proposed number is as many as ought to be cast together in one city school-house; and we should say fewer rather than more. As far as we can judge, without actual study of the problem, we should say that half the number was as many as the proposed lot would comfortably provide for. A hall to accommodate eight hundred scholars, with room for a stage and some visitors, should have an area of about five thousand feet, and this, in whichever story it was placed, would cover half the lot. With this must be fifteen or sixteen class-rooms of, say, twenty-five by thirty feet, pretty high, with their long sides open to the light, beside teachers' rooms, cloak-rooms, etc., and separate corridors and stairways for boys and girls. The children need exercising yards, and for school-rooms in an enclosed lot the width of an ordinary street — forty or fifty feet — is not too much open space to have before the windows in the lower story of a high building. The conditions, then, seem to require no less than three stories of class-rooms, and probably an additional one for the exhibition hall. But a school exhibition room should not, any more than a theatre or concert hall, be lifted three or even two stories into the air, nor should scholars who have already climbed one or two stories be sent up twenty-five feet higher to find their rooms above it. We make a point of this, because we are convinced that the skying of children in the upper stories of high buildings, and crowding them by hundreds in close quarters, is one of the follies of our present system, to which public attention ought to be persistently directed, and against which such papers as the *Sanitary Engineer* and the *American Architect* should lift up their voices. It would, in our opinion, have been wiser, instead of assuming the habitual conditions of over-population in a city school-house, and requiring the competitors to conform to them, to have made it one of the points in the problem to determine for how many children it was well to build a school-house on such a lot as was assumed. The perennial feat of putting a quart into a pint pot was essayed in the tenement-house competition, and proved, as usual, impracticable.

A MOVEMENT is on foot in Boston, it is reported, to found a society for promoting the adornment and improvement of the city. The project is a new and interesting one. Nothing needs more care and more consideration on a broad scale than the ornamental treatment of a city, and nothing gets less. The care of the aspect of our towns is preëminently one of the things which, being everybody's business, are nobody's business. The two ways in which the towns have got their shape are both unfavorable to elegance and to making the most of their natural opportunities. The older ones have grown according as momentary convenience and the immediate interest of property-holders have dictated from time to time. The newer ones are commonly laid out to suit the convenience or the symmetry of the drawing board and square. In very few of them has there been any thoughtful effort to make the most of natural advantages of site, or to lay out what is done for adornment with an eye to general effect. The consequence is that our new cities are apt to be inexpressibly dreary; and in our older ones, when they come to need improvement, this is made enormously expensive by the fact that the greater part of the improving consists in undoing what has been done before. Streets have to be

widened, or straightened, or cut through thickly built regions. Spaces which ought to have been reserved for special uses, or kept open for the public benefit, have been appropriated to inferior purposes, and have to be reclaimed or replaced at enormous cost, while many opportunities which foresight might have turned to account are neglected. Boston herself is an example of the good and bad results of an unregulated growth. Her wayward streets are a standing puzzle and a byword to strangers, but they are singularly convenient to her inhabitants, and are full of picturesque effects, or opportunities for them. She has hacked away at her elevations and spread out her plains, till she has reduced the most of her close-built territory to an unwholesome level, which till now she has found impossible to drain. She has a water front of very unusual extent and capacity for beauty, almost every foot of which she has made an eyesore. With rare good fortune she has reserved for public use in the midst of the city a beautiful open area which is a delight to her people; but this comes of private gift, not of municipal forethought, and even now the more considerate part of her citizens is kept in constant anxiety to preserve it from the speculative rapacity that has sacrificed others of her beauties. In spite of the money she spends in taking care of her looks, the approaches to the city proper are almost unanimously slovenly. The great fire and the occupation of the Back Bay have renewed her architecture, and the wealth of her proprietors has made it more attractive than that of any other American city, but her public buildings and her monuments are an incoherent jumble. With her new park projects she has entered upon a series of improvements which had become very desirable, and will, if rightly carried out, bring many others in their train, and for these she needs all the guidance and help that her citizens will give.

WE do not yet learn what is to be the organization of the new association. It is understood that an incorporated society is proposed which shall be able to receive and administer bequests for the improvement of the city, to watch the opportunities for improvement and the dangers of injury, and to interpose with suggestion, advice, or assistance. If such an association is well managed and influential, there is no end to the good service it may do. Most of the ornamentation of our cities is provided by individuals acting without reference to each other, and commonly each to carry out a notion rather than to supply a want. The public works of adornment are carried on under ever-varying influences, without system or persistent plan. A society which should act as a permanent advisory council, with strength and judgment to make itself respected by the public, could accomplish many desirable things, prevent many mistakes, and could in a great measure arouse and control private liberality, of which the current is unending. One danger to be guarded against, it strikes us, is that of doing things in an amateurish way. The adornment of cities is altogether an artistic work, and so demands professional judgment, but most of it is controlled, and the works of art selected or commissioned for it, by persons who are not artists, and without the assistance of artists. In older communities than ours people have learned better than this, and know the value of professional counsel. Since the new society proposes to influence the artistic handling of its city, and will have to deal with questions of architecture and other arts, it may be hoped that it will provide itself with a competent membership of architects and other artists. Otherwise, however judicious it might be in its general system, or in its advocacy of measures, it would be in danger of unnecessary shortcomings in the execution of its plans, and would certainly fail to be the helpful counsellor that it might be.

WE mentioned a short time ago the accident which happened to Signor Brumidi, when he barely escaped a fall from the high scaffold, on which he was painting a frieze of the rotunda of the Capitol at Washington. The bodily injury which he received was apparently trifling, but the nervous shock was enough at his advanced age to make it impossible to resume his work on the rotunda. The work which occupied him was a band of historico-allegorical figures around the drum of the dome, painted in chiaroscuro, which has excited the wonder of the unlearned in art by the dexterity with which, through tricks familiar to the experienced, it is made to simulate a bas-relief. This is the most pretentious manifestation we have, and we hope it is the last, in any important position, of a kind of decoration which a few years ago, under the misnomer of fresco painting, invaded the country, but which has now been relegated for the most part to rural town-

halls and churches. One cannot refuse sympathy to the earnest desire which the venerable painter is said to express that he may live to see his design, of which he has executed only a third, the consummation of the work he has been doing in the Capitol for twenty-five years, finished by other hands, if his are no longer capable. He still hopes, it is said, to finish his cartoons for the work, and that another artist may be secured in Italy who will copy them upon the walls. We trust that Signor Brumidi has before him a life as long as is compatible with human happiness; nevertheless we must seriously hope, in the interest of sound art, that neither he nor any of this generation may live long enough to see his interrupted design completed. And without committing ourselves to the doctrine of protection to native art, in which we do not believe, we may also hope, having before our eyes the work of Hunt at Albany, and of La Farge in Boston and New York, that no more painters will be imported from Italy to take up the decoration of the Capitol where Brumidi has left it.

THE Annual Convention of the American Institute of Architects is to be opened in New York on Tuesday the 18th of November. We have not yet received any programme of its exercises. The American Public Health Association will begin its annual meetings on the same day at Nashville. The chief subjects that are appointed for discussion are the Sanitary Condition of Cities and Towns, especially those of the Southern States, and Practical Questions connected with the Management of an Actual or Threatened Outbreak of Yellow Fever. Among the papers that are promised, those which should be of special interest to architects are one on Public School Buildings, by Dr. G. B. Balch of Yonkers, N. Y., one on Drainage and Sewerage of Cities, by Col. George E. Waring, Jr., of Newport, and perhaps one on Public Baths, by Dr. E. C. Angell of New York. The president of the association, Professor J. L. Cabell, being also president of the National Board of Health, whose duty it is made to report to Congress at its next session a plan for a national public health organization, has issued a circular inviting all state and local boards of health, as well as other sanitarians, to meet in conference with the Public Health Association at Nashville.

THE RECOLLECTIONS OF SIR GILBERT SCOTT.¹ III.

THE Midland Railway Terminus and the Prince Consort Memorial, both obtained through competition, are among the most conspicuous works of Mr. Scott, and were completed about the same time. Of the latter, he says, the principal motive was "the realization in an actual edifice of the architectural designs furnished by the metal-work shrines of the Middle Ages." The experiment was a dangerous one, and the criticisms which it met, both before and after its completion, were, perhaps, the most severe to which any work of Scott had been subject. He disposes of them *en masse* by saying that "most of them are groundless, some wholly untrue, some merely stupid, and most of them simply malicious." And furthermore, "this being my most prominent work, those who wish to traduce me will naturally select it for their attacks. I can only say that if this work is worthy of their contempt, I am, myself, equally deserving of it, for it is the result of my highest and most enthusiastic efforts. I will also congratulate our art, so industriously villified by the same party, on this, that if the Prince Consort Memorial is worthy of contempt among the works of our age, it argues favorably of the present state of the art among whose productions this is selected for vituperation."

The long and brilliant list of Scott's successful competitions was rudely broken in upon by his "great failure," as he calls it, in the contest for the Law Courts. Scott threw himself vigorously into this competition; the prize was great, his prestige was unbroken, and he had high hopes of victory. The waste of time and labor involved in a great competition like this is made very clear by his account of his preparation for it.

"The instructions were unprecedented in voluminousness, and the arrangements were beyond all conception complicated and difficult, which was further enhanced by the insufficiency of the site. The business of every conceivable department of law had to be studied and its officers consulted over and over again. It took me, I think, from April to September to get up my information, and throw it into anything like shape, and at length I succeeded in packing together in what I had reason to think a good form every room required, to the number, I should think, of some thousands. We were told that arrangement alone was to settle the competition, so I neglected the purely architectural work until a late period. Then, however, I took it practically in hand, working at it at odd times while my more practical study was going on, and then taking

¹ Personal and Professional Recollections by the late Sir George Gilbert Scott, R. A. Edited by his son, G. Gilbert Scott, F. S. A., etc., etc. London. 1879.

a month at the sea-side for this department exclusively, besides much subsequent work on my return home. No previous competition had involved me in such an amount of labor."

Of his design, when completed, he speaks with his usual complacency. "I do not know that my general design was of much merit, though I think that it was fully as good as any recent work I know of by any other architect. Of its parts I am bold to say that many exceeded in merit anything I know of among modern designs." Of the course of the competition and the manner in which the final decision was reached, and the comparative merits of the other designs, Scott speaks with that queer mixture of wounded vanity, frankness, and spite which has been the peculiar reproach of artists in all ages, but to which it would seem an architect with a lifetime of large and varied practice behind him ought to be superior.

"The competition judges, wishing to follow the advice of the assessors, desired to give their verdict in favor of Mr. Barry, but as his architecture was approved of by no one, they conceived the idea of linking on to him some other architect, in whose architectural powers they had more confidence, and they pitched upon Mr. Street, whose arrangements no one had ever spoken in favor of. I at once protested against this as a palpable departure from the conditions. . . . Mr. Street complained of my protest, and I then wrote to the Government, stating that if the judges reaffirmed their decision I should abide by it. They did very unjustly reaffirm it, but the law officers of the Crown cancelled the decision as unfair. . . . I felt bound to adhere to my promise, and I withdrew from the competition, though I was vain enough to feel that my merits, architecture and plan together, exceeded those of any other competitor, an opinion to which I still adhere. Mr. Waterhouse was, perhaps, the closest rival, but Mr. Street had but a poor plan, while his architecture was unworthy of his talent, and had evidently been very much hurried, while Mr. Burges, though his architecture exceeded in merit that of any other competitor, was eccentric and wild in his treatment of it, and his plan was nothing. . . . I am myself content. I was not beaten, for the first decision, which went against me, was declared null and void, while before the final decision I had withdrawn from the competition. So ended the labors of three quarters of a year."

Perhaps the most interesting portion of Scott's practice lay in the work which he did in the restoration and refitting of the various cathedrals. Almost every cathedral in England came at one time or another under his hand, and his accounts of their condition and the work done upon them make, we are inclined to think, the most valuable portion of these recollections. Here is an interesting description of the anatomy of the central spire of Salisbury:—

"Our great work was the strengthening of the tower. The original thirteenth century builders had erected a central tower, rising sufficiently high to receive the roofs of the four arms of the church. The story against which these roofs abutted is a very light structure, and was intended to be visible from within. It is perforated in its thickness by a triforium gallery, leaving externally a wall of little more than two feet in thickness, while the interior consists of a light arcade with Purbeck marble shafts. The corner turrets have each a staircase, rendering them mere shells.

"On this frail structure the fourteenth century builders carried up the vast tower some eighty feet high, with walls nearly six feet thick, and upon this a spire rising one hundred and eighty feet or more. It need not, then, be wondered at that the older story, so unduly loaded, should have become shattered. Subsequent builders have bolstered it up by flying buttresses, and by every form of prop they could invent, till, as Price calculated, the sectional area of the added supports exceeded that of the original structure. Still the crushing went on, and, when I examined it, had proceeded to very alarming lengths. I proposed to bond it together (in addition to the numerous ties it already had) by diagonal iron ties, and then gradually to insert new stones in place of those which were shattered."

At Ripon, it was found that all three towers were in a dangerous condition. "The western towers had sunk dreadfully, and were split from top to bottom on three sides, if not four. The cracks were nearly a foot wide. We underbuilt the walls for some twelve feet below their old foundations, propping them up meanwhile with an enormous mass of timber shoring. The danger was terrific. At one time a perfect avalanche of rubble roared in upon the men engaged below from the centre of the wall over their heads."

At St. Alban's, in underpinning the angle of the central tower, a singular discovery was made. "Its foundations had been excavated into a sort of cave, some five or six feet in diameter, which was filled in with rubbish, mere dust, with some timber struts among it. I can only conceive that this had been done with the intention of destroying the building by setting fire to the struts, but that the process had been suspended, and the tower has remained propped up on short oaken struts from the Reformation till the recent repair."

The pleasure of all the work on the cathedrals was doubtless marred somewhat by the ferocity of the anti-restorationists, who, like most men who mix up morals with fine arts, threw common sense to the winds, and pursued their unhappy victims with all the venom of theological controversy. Scott's protest against this extravagance is reasonable and manly, but a little less of personal sensitiveness, and a little more of personal dignity, would have better become a man who had made good his position by so many years of skilful and judicious work.

His chapter on the Gothic revival is interesting, but not altogether satisfactory. It attributes the "awakening" chiefly to the books of the elder Pugin, notably the specimens, and the adoption of the foreign features to Ruskin. But it is extremely doubtful whether any such change as the one in question was ever made general through the influence of literary works alone. Pugin's and Britton's works were no doubt among the first signs of the coming change, but other causes were at work. One of these, of which Scott, in his book, unaccountably omits all mention, was the rebuilding of the Houses of Parliament in the Tudor style, and the employment of the younger Pugin as Barry's assistant, who for nearly twenty years made nearly all the drawings for the interior detail, and under whose enthusiastic lead was marshalled the army of workers in wood and stone, iron and brass, tiles, mosaic, stained-glass, etc., which taught the people of that generation what modern artisans were capable of in the way of decorative art. That was the true beginning of the Gothic revival. Ruskin's writings, photography, the increase of foreign travel, the establishment of art-schools and museums, and the energetic impulse of a new interest, rapidly modified the fashion of architectural design from year to year, till the lately admired classic forms were forgotten or despised. Scott lived to see the movement, whose life was almost exactly contemporaneous with his own, reach its height of prosperity and influence and enter on a period of rapid decline. It had no more conscientious, consistent, and liberal-minded leader than himself.

THE OPEN FIRE-PLACE. XVIII.

SPECIAL FORMS OF CONSTRUCTION.

It is clear that for a given amount of fuel burned any furnace may, by extending the heating surface, be made to yield the same amount of heat to the fresh air, but the heating surfaces may be ill or well constructed with reference to favoring the draught, economy of space, tightness of joints, facility for cleaning, durability, and cheapness, and upon this depends its value. The various kinds of hot-air furnaces now in use are characterized by the degree of excellence obtained in some one or other of the above desiderata, no one combining all the excellences, so that in searching for the form best adapted to our purpose many must be reviewed. In so doing we find that they divide themselves into two general classes: first, those in which the hot air circulates in flues, while the smoke fills the space surrounding them; and second, those in which the reverse takes place, the smoke being inside and the fresh air circulating around them.

The heating effect of the latter method is, for the same extent of

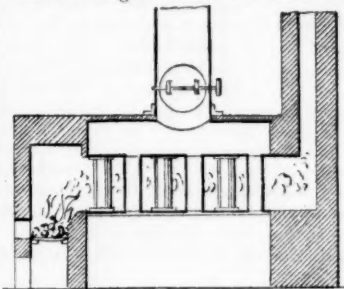


Fig. 130.

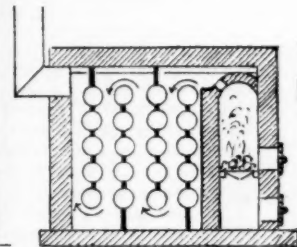


Fig. 131.

surface, much greater than that of the former, because when the smoke passes through the flues the heat radiated from the surface warms the inner walls of the surrounding air-chamber, which, in its turn, gives up its heat to the fresh air in contact with it. Thus both surfaces serve in heating the air, and the furnace acts both by radiation and by convection. The effect produced varies but little with the extent of the chamber, because the amount of heat which it receives is constant, and the smaller its surface the higher its temperature. By the former method all rays of heat which do not strike the fresh-air flues are lost. Figs. 130 and 131 represent furnaces of this class. In Fig. 130 the smoke flows horizontally across perpendicular fresh-air tubes, and in Fig. 131 the movement of the smoke is perpendicular, and that of the fresh air is horizontal. All the heat received by the masonry of the furnace is lost, since no fresh air is brought in contact with them to carry it off. Abandoning, therefore, this class of furnace, we have only to consider those in which the smoke circulates inside of the flues, and the fresh air surrounds them.

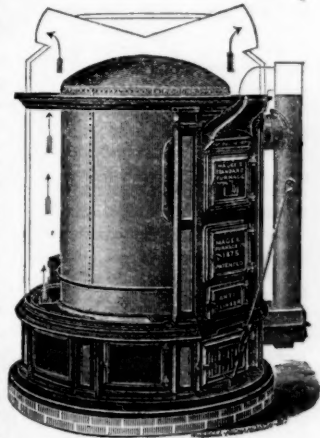


Fig. 132.

These, again, may be classified into, first, those having simple drums, like the Magee Furnace (Fig. 132), and second, those having detached tubes, as in the Chilson (Fig. 134). The former has the advantage of simplicity and the minimum of joints for the escape of gas, and the latter of a greater radiating surface. In an ordinary furnace the first consideration is of the greatest importance, because a leakage of dangerous gases may take place without the knowledge of the occupants, in case of downward draughts. Where the furnace is used over an open fire-place leakage may at once be detected by the appearance of the fire, and cured by simply opening the direct smoke-draught, so that this freedom from joints, though important, is of less consequence than an increase of radiating surface.

The movement of the fresh air may take place in the same direction with the smoke or in an opposite direction. When the currents flow in the same direction the smoke will evidently cease to give up its heat when the two gases have the same temperature. But when the currents take place in opposite directions the temperature of the smoke may be lowered to any extent, only limited by that of the outside air. With a basement furnace, as ordinarily constructed, the requirements of the draught are such as to render total extraction of the heat from the smoke undesirable, but where the construction is like that shown in Fig. 129, such a result would be an important desideratum.

In the Peerless Furnace (Fig. 133), we have an illustration of this principle. It is not necessary, however, to have the smoke descend in order to accomplish the work. The smoke may rise direct and the fresh-air current be reversed.

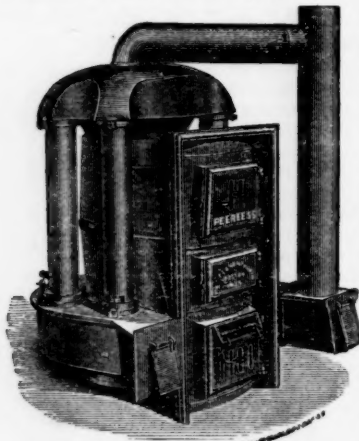


Fig. 133.

The Chilson Furnace (Fig. 134) is an example of direct smoke-draught.

When the movement of the smoke or fresh air is upwards, if it be divided into separate currents, some means should be adopted to direct the flow equally into each, as otherwise it would follow by preference that which offered the least resistance, and when everything appears to be disposed in a manner perfectly symmetrical, the slightest difference determines the movement in one direction or in another. The current will only divide itself equally when the flues have, in the aggregate, a sectional area equal to that of the main pipe, and when the branch flues are themselves equal in area to each other. When, however, the gas flows in a reversed or downward direction, the division will be uniform in the flues without the precaution of making their aggregate sectional area as small as that of the main pipe (Fig. 133).

In the Chilson Furnace (Fig. 134) the means adopted for equalizing the ascent of the smoke in the various upright flues is the tapering of these flues as they ascend. Where they join the horizontal ring above, their aggregate sectional area is but little greater than that of the main flue. This method, however, has the disadvantage of presenting a retreating surface to the ascending air current. A horizontal pipe presents but one side to the ascending air current, and therefore is less effective in heating it than a perpendicular pipe, which may be entirely surrounded by the air. The conical surfaces of the pipes of the Chilson Furnace are open, in a certain degree, to the same objection. If the cones were inverted the fresh air would impinge with much greater force upon their surfaces. But such an inversion would expose them to the danger of clogging by soot. Moreover, the tapering of the flues, whether upwards or downward, diminishes their actual superficial area and consequently their heating

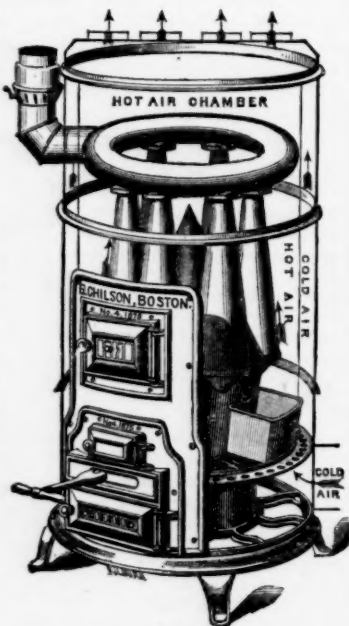


Fig. 134.

power. Some other method should be adopted for regulating the current, not open to these objections. The pipes should be so arranged that they may be easily cleaned, yet so formed that frequent cleaning would be unnecessary.

Finally, furnaces may be again subdivided into various classes, according to the material of which they are constructed.

THE ILLUSTRATIONS.

THE CONNECTICUT THEOLOGICAL INSTITUTE, HARTFORD, CONN.
MR. F. H. KIMBALL, ARCHITECT, HARTFORD.

An account of the manner in which the architect and his original design were treated by the building committee, together with a description of the building, will be found in our Hartford correspondent's letter in the *American Architect* for September 13, 1879.

TOWER OF THE CHURCH AT SAINT QUAY-PERROS, FRANCE.

We reproduce this engraving from the well-known French journal, *La Revue Générale de l'Architecture*.

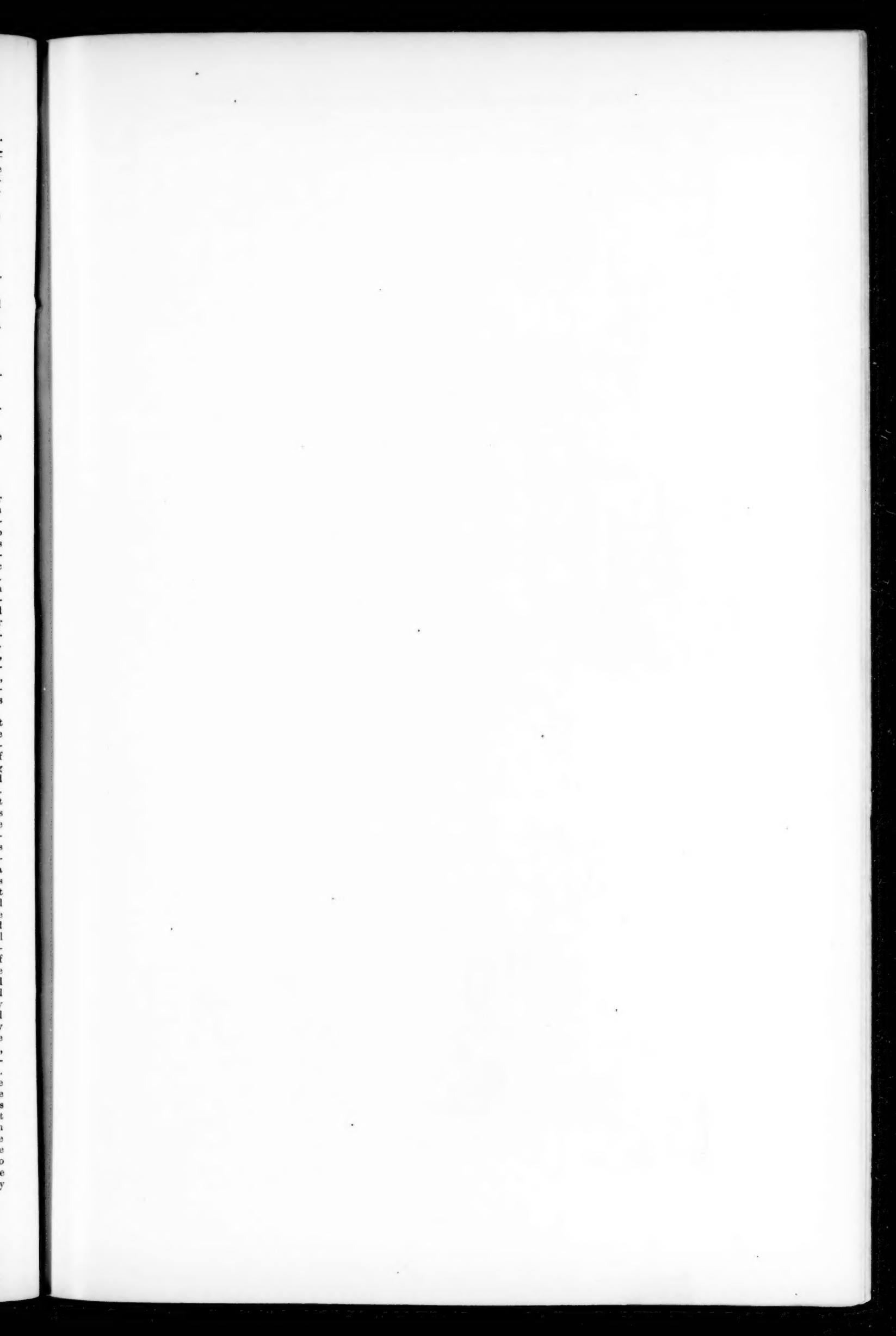
HOUSE FOR A. L. RAND, ESQ., NEWTON CENTRE, MASS. MR. C. A. RICH, ARCHITECT, BOSTON.

The inside finish of the principal rooms on the first floor is to be in hard wood. Elsewhere it is to be in pine.

PICTURES OF THE SEASON IN NEW YORK.

ANNUAL exhibitions, composed principally of the works of our own artists, absorb our attention in the spring. But at this season we turn — perhaps as eagerly — to the picture-dealers and their recent importations. The entertainment they offer us this year is too good to be passed over without a word of approval. What Thomas has done for music in New York, the dealers have, to a certain extent, done for painting. They have kept a step ahead of the public and educated it gradually to the appreciation of their best wares. It shows a notable advance in the last few years, when we find them now offering with confidence the actual cream of modern achievement. The best works of the noblest brushes are now admired, — and bought, — and works of talent with unfamiliar signatures are no longer always dreaded as dangerous experiments by the purchasing amateur. Of course "popular favorites" of long standing are still in force. Bouguereau, Seignac, Verboeckhoven, Meyer von Bremen, Frère, are not yet out of date. Still it is an encouraging fact that Bouguereau's large and showy *Charity* has hung for a year at Goupil's, while the famous *Mare aux Grenouilles* of Diaz — as fine a landscape as he ever touched — was in M. Schaus's hands a few days only.

The dealers do not show us their whole importation at once, but the samples already exhibited contain some of rare quality. The most striking canvas at Goupil's is a large winter scene with a three-horse sleigh, by the Pole, Chelmonski, one of the very newest of Parisian lights. It is a powerful picture, and a strange one, strong rather than beautiful, realistic, yet without elaboration of detail, and full of tremendous life and motion. The technique is most peculiar. We have all seen "broad" work, surely, of many kinds in recent years. Chelmonski's is not as broad or dashing as some, but is fiercer, more brutal, if I may so speak, than any I remember. There is great power of characterization in the faces and very good painting in the shying horses. Of color, sought for its own sake, there is little, and of "tone," similarly sought, no more. It is the vivid reality of the work that impresses us. It is like a fierce bit of bravura playing where we think less of the theme than of the marvellous manual audacity that renders it. Such a picture is in the strongest possible antithesis to the Schreyer that hangs opposite, — mild and luxurious-looking, in spite of snow and shaggy coats, everything else being sacrificed to "tone" and the chord of softest browns and grays. The other good pictures in this room do not need special description, for they are by better known hands. There is an admirable de Neuville, with four figures, — one of them a portrait of General Ducroz. The picture is remarkable for its artistic balance and repose, and for the perfect atmosphere. A large Ziem is a good example of his brush, and gains by varying from his most mannered work. The color is wonderfully rich, though perhaps not equally harmonious, and the fantasy of the usual Venetian scene is sobered by the heavy foliage of the foreground, which is, by the way, very cleverly done. Daubigny and Diaz are represented by average specimens, and among two or three Corots there is one, the smallest, that is very lovely. It is said to have come from the studio of Daubigny, to whom it was given by the artist. A large canvas by Mr. Joseph Jefferson, besides being poor in itself, well exemplifies the difference between an original talent, like Corot, which paints nature as it sees, and a man who strives to paint nature as he imagines Corot to have seen it. There have been rather too many such about of late. We turn with delight to another first-rank man, Anton Maure, who has here two fine landscapes, with sheep, remarkable for distance and atmosphere. Such pictures are an earnest that the poetic and truly artistic school to which they belong is growing into favor with us. What would the buyer of, say, fifteen years ago have said to Maure? Another very good thing is a tiny cattle piece, by



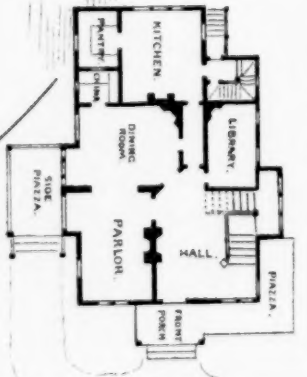
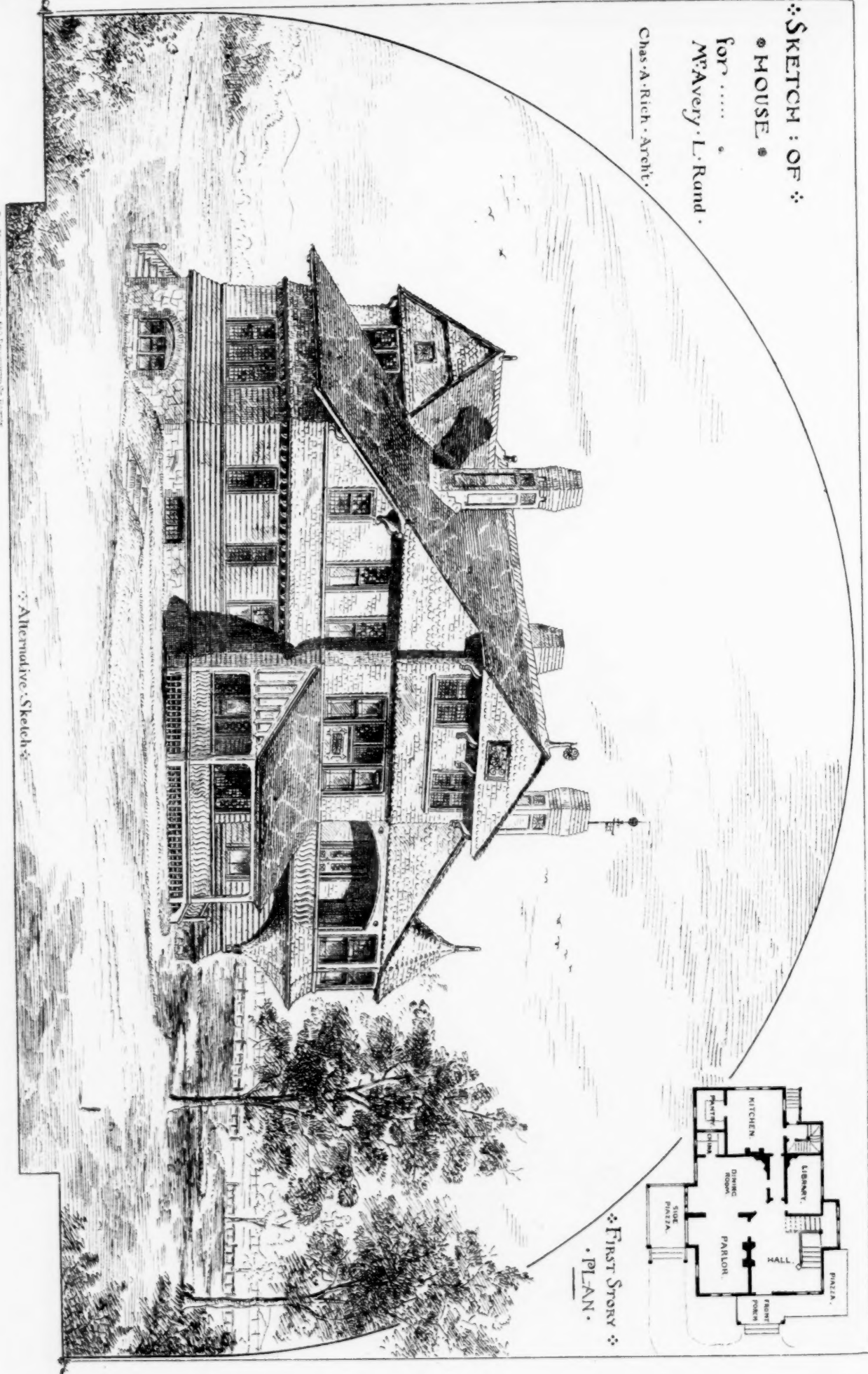
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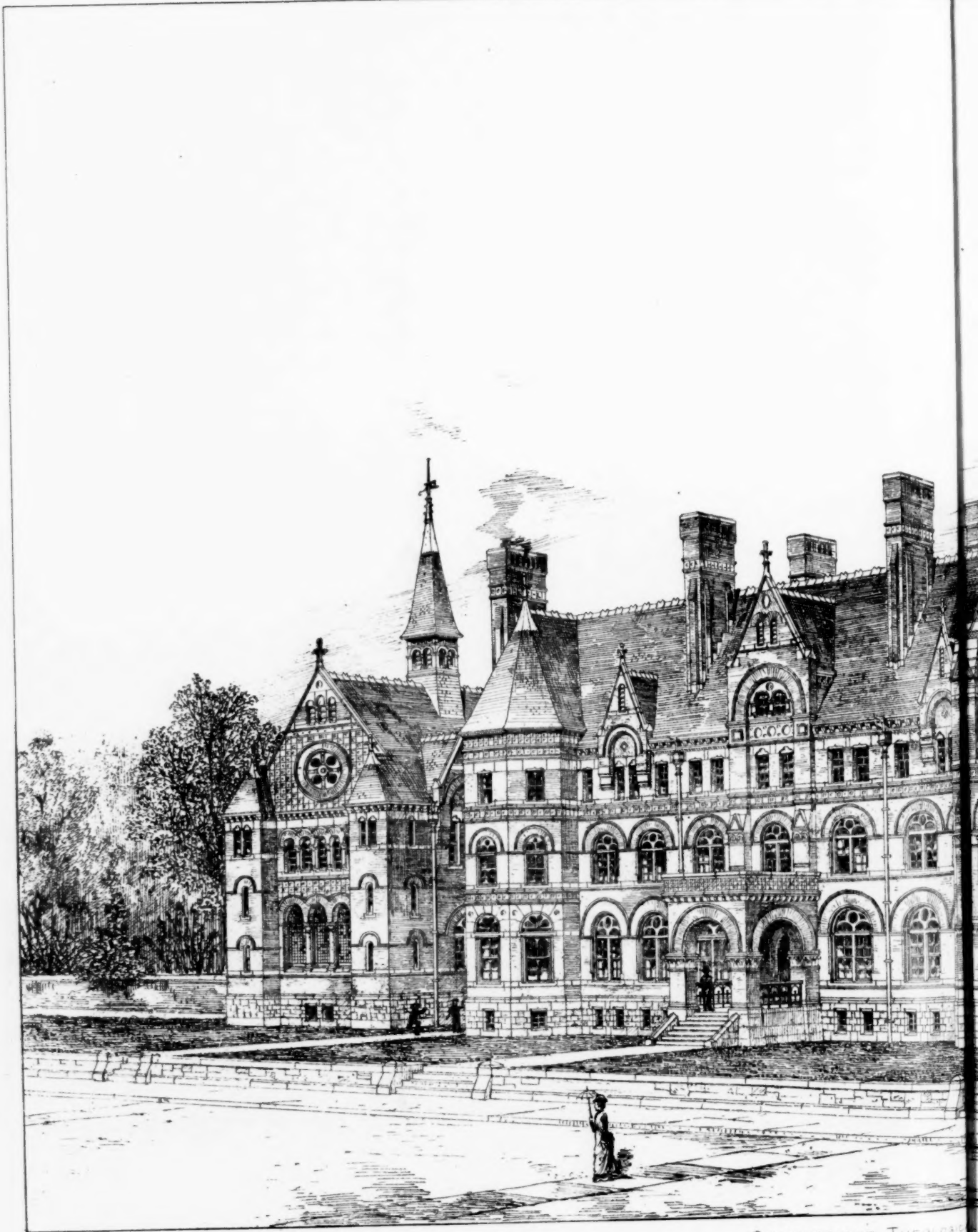
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van Marcke; and Gros and Gués have each a clever small figure in their well-known styles. The Gués would be a fine little spot of red to hang in a corner now too sombre. There is furthermore a good and dramatic bit of military painting from the brush of the Prussian Hüntten, and also one of Knaus's sought-after heads. This time it is a laughing boy, a replica of the head of the principal figure in a large picture called, I believe, *The First Earnings*.

Mr. Avery's gallery contains a fine still-life by Robie, where he abandons, with profit, I think, his usual amount of crimsons and pinks, and gives us a scale modulated on the brown and gold of the pheasants that are the centre of his group. A good thing is the head of a sleeping child, by Defregger, — not idealized in the least, nor picturesque, but truthful and realistic in the best sense. It is interesting to see a large study head from Vibert's brush, very different looking in its rapid breadth from his small, finished pictures. The violent flesh-tints in which he indulges are more noticeable here and make us quite content that he should always give us only cabinet pictures. I noted, also, a very good Clays, a large and poor Escosura, and two pictures of single figures, by Boughton, which are neither like life nor like any artistic ideal whatever, — melancholy ghosts of most unbeautiful women. Further, a small Bridgman, painted last year, two Orientals playing at draughts, in which color and texture are better than the attitudes. A new name is that of Kowalski. The Slavonic element in continental art, it may be noted, is becoming very conspicuous, and seems always to be powerful. This is most unlike the work of his countryman, Chelmonski, but also good, — a clever, highly-finished cabinet painting of horsemen in armor, in the street of a town. Another new name — to me at least — is that of E. Villa, whose Japanese Lady is clever. The mass of red drapery is very well managed, and the head admirable for expression and finished flesh painting of the ivory-like kind.

At Mr. Schaus's gallery there is a Joan of Arc, by Jacquet, a full-length figure, which is not satisfactory. The pose is ungraceful, and the head, though of course beautifully painted, is most uncharacteristic. On the other hand, a large picture called *The Angelus*, by Merle, a single figure in a mediæval dress of beautifully contrasted tints, shows this artist at his best. He is out of favor, of course, with the admirers of more recent fashions of working, and with those also who look for strength of some kind as a necessary factor in art. But the many who do admire him will agree that his virtues are well exemplified here. In this gallery we find another fine Clays, an exquisite little water-color by Célestin Nanteuil, and a good single figure by Palmasoli. This last is noticeable, as the Spanish school seems yet a good deal out of favor this year. But can we complain when we get instead a large number of works from the very best modern Frenchmen? I have already spoken of Diaz's *Mare aux Grenouilles*, which was recently sold, as was also a large Dupré with an oak tree. And no one would ask for any canvases of the recent "chiffoné" school before the superb calmness of a small Dupré and a Daubigny Mr. Schaus now exhibits. I do not know whether a large Lambinet he had a few weeks ago has been purchased or not, but it was a fine thing. Better yet is a Corot, a square picture with a distant glimpse of the Mediterranean. No finer sample of his power has come to this country. It dates from about ten years ago, and would be a revelation to many who think they know what a Corot means. As I said long ago, in speaking of the master's *Orpheus*, it is magnificent poetry, not substituted for the painter's art, but expressed by means thereof in the most admirable way. It is a picture to confute at once those who prize prosaic "truth to nature" as all-sufficient, and those who are satisfied with an "idealism" that scorns artistic aims and methods, and can pass over the absence of good painting in a technical sense for the sake of certain imaginative qualities indicated rather than legibly expressed. But the gem of this year's importations, as far as they have yet been shown us, is without doubt the Diaz figure-piece in Mr. Schaus's possession. Like Corot, Diaz was very unequal, and like Corot, again, there is a poetry and an artistic force in his best works unsurpassed by modern brushes, undreamt of by many who are even well acquainted with his lesser works. I myself lived years in a house with three of Diaz's figure-pieces, and very good ones, but found here something different. It is not in the decorative style he often chose, with its rich and dazzling, but sometimes over-vivid, color. It is far beyond the mediæval or Boccaccio-like pieties that are, indeed, so delicious, — still farther above the so-called Turkish groups, like the one, for example, that we saw in the Spencer collection last winter. This picture, which is larger (24 × 30) than most we have seen on this side the water, contains seven figures of nymphs and cupids in a landscape that is noble beyond description for composition and color. The figures are more carefully drawn than is usually the case, and the coloring, equally rich, is more sober, more permanently delightful, more in keeping with the perfect classic spirit that has inspired the whole. I do not mean that it is the actual classicism of the antique, but the equally artistic though different classicism of Italy in the early sixteenth century. It is a belated Venetian or Parmesan of the *Hochrenaissance* that has dreamt such a dream, that has wielded such a brush as this. One who has seen but the average of modern work, to whom the average modern spirit seems the incarnation of all our artistic possibilities for the future, will scarce believe how near one of us has come to Correggio — to his conceptions, and, in a way, to his very workmanship. I

may seem over-enthusiastic, but this is in very truth a most unusual picture, one that should not be allowed to pass into private hands, while there are empty museums that might offer it for public delight and improvement.

The first sale of the season has been that of the Gilbert collection, mainly of English pictures. Most of them were by men very mediocre, even in their own school. There were several fair Hillingsfords, however, and by Thomas Cooper a finished sketch for his large picture, *Sheep in the Highlands*, that was at the last Paris Exhibition. The effect of light on the snow was very good. Douglas, a pupil of Landseer, who is, I believe, very well thought of at home, had two pictures which scarcely justified the fact. In the attempt to render the texture of dogs' coats his brush-marks looked simply like brush-marks, and not much like locks of hair; a fault, indeed, not wholly absent from the work of his master. There was also a small Mulready, — was he not a sort of less delicate and less technically-accomplished Meyer von Bremen? — and an Ansdell, very crude in color. It is such pictures as this that are so unpleasantly surprising when one has already known their engraved reproductions. Which one of us who has studied the beautiful Vernon Gallery plates, for instance, on many a youthful Sunday afternoon, but has felt the bitterest disappointment when he hurried to their originals in the National Gallery? This Ansdell would make — probably has made — a lovely engraving, but I should hate to be forced to look at the original day by day. It is the pure skill of the painter that is most lacking to Englishmen of the olden school, — the power to make their picture an admirable object to the trained eye, a sensuously delightful object to every eye, whether trained or not. These are trite conclusions, of course, but they come to one with fresh force at the sight of every group of English pictures. The actual faults of their technique are of two kinds. On the one hand there is the hard, tinny, absolutely unartistic style, which was exemplified, to a degree, in this Gilbert collection by the Herrings, father and son; or, if I must give names of higher rank at home, by such a picture as Mr. Marks's *Falstaff's Own*. It may be remembered that Mr. Ruskin once said that Marks's painting was of "good standard modern quality," which proves pretty well how low the English standard has been. When we leave this hard and wooden style we come, on the other hand, to pictures that are soft, textureless, and "mushy," if the word be allowed. They look as if there were in all nature nothing solid as to substance or definite as to color. Such a picture in this collection was Mr. James Webb's large *Vale of Ross*, a mass of soft and mossy-looking colors, without clearness of handling or unity of tone. Among the few continental pictures there was, by the well-known Pole, Jos. Brandt, a large camp scene of the seventeenth century, such as he so often paints. It was marvellously well done for the style of work, many small figures, exquisitely drawn, the coloring being good, but not pronounced, holding, as in so many German pictures, the second place only, being used as an accessory to further define the elaborate drawing. One may say that a painter should be, first of all, a colorist, yet such a picture as this is undeniably artistic, and one sees how good a technical artist the painter is by comparing it with the canvas of Mr. Marks, already referred to. Finally, there were two Tissots, interesting, as usual, and showing the usual curious effect of French modes of seeing directed upon English objects. His coloring is scarcely such, it has the pale and shallow look of pastel, and is kept so near to black and gray tints as to be almost monochrome. Hence a sudden bright touch, like the yellow flower in *A Honeymoon Tiff*, does not enliven so much as jar upon the general effect. The large *Morning Call*, which is so fascinating, because so prettily and characteristically modern, in the beautiful reproduction of the print shops, did not win much added admiration when seen in the original. It was a study in black, with a white background, and here the too sharp note of color came in the red lips of the scarcely more than tinted face. The brush-work was very clever, of course, and there is no one who gives a sort of boudoir and conventional beauty like Tissot without falling into the insipidity of a Toulmouche. It is hopeless, perhaps, to protest, as has so often been done, against the stupid and exasperating English device of covering oil-paintings with glass. If it is necessary to protect the surface from a smoke-laden atmosphere, they may be put in boxes, and the lid opened when the picture is examined. Many delicate pictures in European galleries are thus protected, a precaution that is often annoying enough; but to put a glass under the frame flat upon the paint is simply heathenish. All possibility of judging either methods or effects with accuracy is lost, and the better the light the less well one can see the canvas. Besides all which it is a process often most detrimental to the state of the picture itself.

I may note, in conclusion, that the famous *Deux Vanderveldes* of Meissonier will shortly be on view at Mr. Schaus's, and that Munkacsy's *Milton* and his *Daughters* has passed into the guarded semi-publicity of the Lenox Library.

M. G. VAN RENSSLAER.

GLASS PAINTERS' CENTENNIAL. — The nine hundredth anniversary of the discovery of the art of painting on glass has been celebrated at Tegernsee, the Bavarians claiming the invention for the Benedictine abbey there. Professor Sepp wrote a pamphlet for the occasion, maintaining the assertion. Four stained windows were unveiled in the church of the village, which have been put in to commemorate the event.

CORRESPONDENCE.

THE CATHEDRAL.—ST. MARY'S IN THE CAPITOL.—THE CHURCH OF THE APOSTLES.—ST. MARTIN'S.—ST. GEREON'S.—CIVIL BUILDINGS.

COLOGNE.

COLOGNE is a thoroughly German city, though on the left bank of the Rhine, and though its famous scent has carried a French name to all parts of the civilized world; only a small part of this "eau de Cologne" is, however, made here, and probably its origin is forgotten by many besides the bluff Englishman who, breaking down in his French in a shop, went helplessly away because he did not know what they called "eau de Cologne" in France! But for us the city has another interest, its cathedral forming one of the landmarks in our architectural horizon, as the finest Gothic monument of the Teutonic race. The city lies in a half circle on the Rhine, here a wide and noble river, and its aspect from this side is imposing, with the great cathedral towering grandly in its midst. The two huge spires bristle with the ponderous scaffolding which is slowly carrying them to completion. They will then be one hundred and fifty-six metres (507 feet) high, slightly higher than the iron spire of the Cathedral of Rouen, now the highest spire in Europe. With the exception of about a fourth of these spires yet to be finished the building stands a perfectly completed cathedral, very nearly such as it was first designed in the middle of the thirteenth century. In this respect it is a rare example, for few cathedrals have ever been completed, and still fewer in one style. Each generation continued the great monuments with the methods familiar to them.

Standing free on all sides, the cathedral is seen to advantage; the view of the apse, with its girdle of flying buttresses, is especially fine, as the ground there falls away to the river. A description of the exterior is superfluous, as photographs and engravings render it satisfactorily, and, unfortunately, the cold greenish gray of the stone does not diminish the dryness which seems inherent in all the Geometrical Gothic work of Germany. This dryness, which the picturesque stains of time do not efface, is almost the only defect in this magnificent composition. The proportions are admirable, and the rich details skilfully placed and subordinate to the masses, and there is hardly a Gothic church which presents so few errors or vagaries in design; and yet this splendid completeness inspires admiration rather than enthusiasm, and more wonder than interest. Many smaller and less perfect churches are more impressive, while this, because there is a flavor of the T-square and compasses about it, suggests an immense model. There is nothing of the spontaneous grace so charming in French cathedrals, which throughout, down to their smallest details, breathe a personal artistic inspiration, or rather the inspirations of many artists. The varying humanity thus wrought into Gothic work gives it a peculiarly sympathetic quality, and this is by no means incompatible with symmetrical and homogeneous design; though the latter is more often found, as more easily obtained, when one mind controls and develops the work throughout.

In the interior this dryness is less evident, especially when its mechanical triumphs are warmed by the colored rays from the vast windows. Six wide and lofty bays in the nave, with rather late crockets on the archivolts, support the triforium gallery, which has four slender arcades to each bay. These arcades are divided by delicate round mullions, and the outer wall is pierced with similar arcades with coarse mullions. It is rare to find thus the wall of the triforium pierced and glazed, but the effect is fine; a great additional surface for stained-glass is gained, and at the same time the triforium gallery is preserved to give light and shade, and by revealing the thickness of the walls relieves them of the cardboard look which their clerestory walls must have. The choir was begun in 1248 and finished in 1322, and the nave, though later, was carried out in the same style. The bays of the choir are stilted, and of half the width of the other bays. The spacious double aisles are carried around the transepts. The vaulting is the simple quadripartite, and in the aisles remarkably concave. One of the most beautiful effects of the church is the slender shaft of the nave-piers, which, rising from the floor, supports the central vaulting rib. The glass through the triforium is new and inoffensive rather than good. The clerestory has old glass of a greenish tone. Many of the windows of the aisle are new, and come from Munich, Berlin, and Cologne, but none of it is comparable to the best English work. Their mediocrity becomes painful beside five great windows of the north aisles, painted in 1508-9, and splendid examples of that period. The *chevet* has seven chapels with tombs,—interesting to the historian rather than to the architect. The sacristy contains a fine collection of altar ornaments.

The dimensions of the building are about (I say "about" because it is rare to find authorities agreeing on the dimensions of any building) 136 metres long by 61 wide, and 86 across the transepts, height 44 metres. There are six bays in the nave, and four in both the choir and transepts. It will thus be seen that the nave is very short compared with the other dimensions, and this is at once felt, on entering, to be a radical fault. The great height and width of the nave, further exaggerated by the double aisles, require a long nave, from which the lofty transepts would gradually open. As it is the transepts attract the eye at once, on entering, and the nave is so short and high that it is hardly seen at all. To remedy this, works are now in progress by which the great porches in front and

those under the towers will be thrown into the nave, and thus the latter will gain two bays, which will, however, but partially relieve this defect.

The very completeness of the cathedral, which leaves little to explore, will cause it to hold the attention of the architect less long than some of the parish churches scattered about the city. These are chiefly Romanesque or Transitional, and are of vital interest to our modern architecture as examples of a noble style, whose development was suddenly cut short by the Gothic fashion, and which, therefore, offers to us data from which to develop a new and characteristic style, should we find it applicable to our wants: and this cannot be the case with those styles which reached a complete development, and passed into a decadence. The oldest of these churches is St. Mary's of the Capitol, consecrated in 1049, but whose nave and transepts date from the twelfth and thirteenth centuries. The most striking features of the façade are the two circular transepts, which, as well as the central apse, are surrounded by a beautiful open gallery under the eaves, and this, which is a characteristic of all the Romanesque churches upon the Rhine, recalls the black-and-white marble architecture of Northern Italy; but here in the north, where the shadows are more rare and uncertain, this vigorous accentuation of light and shade is the more admirable. The effect of the three semicircular apses is very robust and grand without; within it is more open to criticism, as diminishing the value of the central apse; yet these three apses, around which aisles are carried, give a splendid richness to the east end of the church. Over the crossing of transepts and nave is a flat dome. A characteristic of this group of churches is the slender detached coupled columns which support the arch-walls of the round-arched clerestory windows in the apses. These churches are almost without chapels; in this case there are but two, placed at the east corner of choir and transept. The square piers supporting the round arches of the nave are almost as wide as the spaces between them.

The apses have plain barrel vaults, and the nave an early thirteenth century pointed one. The entire church has lately been decorated with Byzantine scroll patterns; their dull yellows and bluish greens are, however, not agreeable in tone. The Church of the Apostles, in the same style, has a finer exterior than St. Mary, and is seen to better advantage. Its three great circular apses, separated by two square towers, viewed from a large square, are very grand. A dirty coat of whitewash disfigures the interior. The nave crossing is here raised upon a drum, but otherwise the design is much the same as that described above. St. Martin's, though dating likewise from the twelfth and thirteenth century, preserves the Romanesque throughout its interior, and has been lately decorated with extraordinary success. The walls of the aisles are covered with a double range of figures upon a Venetian-red ground; from their archaic character they appear a restoration of remains found there. Aisle-vaults and nave-piers of greenish stone color, nave-vaults of blue, with bold central motives of red on a light ground. In the apses the colors are intensified, and powerfully contrasted with black shafts of a mural arcade below and those of the clerestory. Between this arcade and clerestory are a series of heads of prelates. The effect is very fine. Few colors are used, and those disposed so as to produce a cool, quiet general effect, though rich and warm in detail. Instead of two towers at the angles of the apse, this church has a very fine tower and spire over the nave-crossing. These three churches are fair types of the Romanesque churches scattered along the Rhine. Their three circular apses relieved by the rich arcade under the eaves, through which is often seen the apse vault, as in Italy, their solid walls pierced with few windows, and firm square towers render them impressive from the first; while their dignified simplicity is a beauty which gains on nearer acquaintance. They all have remains of good early glass. Besides these and other churches, Cologne has one which is unique in its character: St. Gereon consists of a large decagon dome of the thirteenth century, attached to a choir dating from 1069. The decagon, with radiating chapels, is lofty and brilliantly lighted, and forms an impressive contrast with the severe choir, in whose sombre shadows the high altar rises dark against the narrow windows of the apse. The high altar deserves the name, for not only is the whole choir raised some five metres, but the altar, again, is well elevated above it, and this produces a grand effect. Indeed, nothing can be more solemn than this elevating the altar. No wealth of carving nor ornament, no pomp of marble nor baldachin, can equal the solemnity of the simplest altar, if lifted high above the body of the church. Add to this that the ceremonials of the church are vastly more imposing when thus high above and in full view of the people, and it seems extraordinary that this simple and natural position of the altar should not have been more commonly adopted. The Gothic architects, with all their keen appreciation of the picturesque, turned this to but slight account in comparison with the splendid possibilities open to them in their long and lofty choirs.

Their attention was too often directed, like that of the Renaissance architects, to raising a canopy above the altar. There are examples, as St. Miniato at Florence, where the choir is raised simply to obtain a crypt below; even then, if the choir is deep, the altar is rather hidden than raised high enough to give the effect of which I speak. Here at St. Gereon's there is a crypt entered at the side, instead of, as is usual, in the centre, between the two flights which ascend to the choir; but in all these Rhine churches, with or without crypts, there

is a marked intention to elevate the altar, which was lost sight of in the Gothic style which superseded this architecture.

Of the civil buildings in Cologne the city-hall claims attention first, with a fine square tower of the rich Gothic of the beginning of the fifteenth century. One of the façades has a Renaissance portico of the sixteenth century, pleasing in some respects, but whose entablature with rude heavy consols hardly merits the praise which Mr. Fergusson awards to its design. Within is a hall of the fourteenth century with pointed wooden vault. But this hall is eclipsed by the magnificent one in a building near by, of the fifteenth century, called the *Gürzrich*. What changes were made in restoring it in 1856. I do not exactly know, but as it now stands it is 57 metres long by 22 wide, and 14 metres to the top of the handsome hammer-beam roof. There are spacious galleries at the sides, supported upon 22 wooden columns. The wood is simply oiled and picked out with gilding, and this makes an agreeable harmony with the dark green walls.

Coming down to the present day, the museum represents the modern Gothic. It was built in 1861, at the expense of a wealthy citizen. As might be expected, the style is dry and unpleasing, but the plan is good. It contains fine collections of Roman and mediæval remains, and a large collection of the old Cologne school of painters, as well as modern pictures. The staircase-hall opens from the central vestibule, giving access to galleries on each side, and has a graceful pointed dome, with delicate ribs rising from slender engaged colonnettes. The engineering glory of the city is the railway bridge, which has also a road for carriage traffic. It is of iron trestlework, and measures 412 metres. As for the new private buildings, they show no especial character, being either of the early German Renaissance, or else of a bastard Gothic; but they are well built. The city is a fortress of the first class, and counts among its 135,500 inhabitants 7,000 soldiers in garrison. R.

BRICKLAYING IN FRANCE.

[We owe to the *Architect* the following extracts from one of the artisans' reports on the French Exhibition of 1878, which were prepared, as we understand it, by the authority of the Society of Arts.]

BOTH in Paris and in the towns and villages outside, bricklaying seems to be the work of only two schools of bricklayers of definitely fixed methods. The sameness of execution and sameness of design in these two typical methods is very remarkable. The execution consists, without exception, in laying the bricks in mortar, in a manner known as "left for pointing," and in afterwards stopping in the joints, and laying on, with a three-eighth-inch jointer, a white joint in either plaster or putty. This is the method adopted for the best description of work. The only other mode of finishing the face-work consists in laying the bricks as in the first instance, and then stopping in with white stopping. The whole is afterwards colored to the required shades, and the joint brought out white by ploughing into the stopping with a jointer run along a "straight-edge" rule, to the depth of about one fourth of an inch. The width of the joints is about three eighths of an inch, alike for the bed and cross-joints.

In laying bricks for pointing or external plastering, the French workmen make no attempt to "fill the joints," but leave them gaping and open to a depth of about three fourths of an inch, so that no "raking out" is required. Such performance would not be sanctioned by an English clerk of works, or suit the taste of English bricklayers, although, it must be confessed, a better key for either stopping or plastering is thus obtained than by the "raking out" process. Whether the French have borrowed or adopted "tuck pointing" from the English I cannot say. They call it "English jointing," or *joint anglais*. In my opinion a good lesson might be learned from them if their mode of mixing, and the materials which they employ, could be accurately ascertained. The joints have a glazed appearance, and are very hard; and I have not noticed a single instance in Paris of the crumbling away or falling off of the joints, so frequently seen in England.

This may, in some measure, be due to the difference in the action of the two atmospheres, or to the less frequent sudden changes from soaking rains to freezing which occur in Paris. Whether this be the case or not, I am convinced that the more capillary absorption is avoided, by the employment of materials of a more dense and less porous nature in the construction of joints, the less will be the subsequent disruption of our work by the expansion of the water lodged in the pores upon the occurrence of freezing. From what I can make out by the examination of both old and new work, the durability of the French pointing is due, in a great measure, to the employment of a more dense and consequently less absorbent material than we use, and to the giving a better key to the stopping, by the method of leaving the joints open, as has been described.

The only artistic effect produced in brickwork, in Paris, is the almost universally adopted checkered, lozenge-shaped, and square patterns, which are supposed to be done in various-colored bricks, namely, light, dark, red, and blue; but which is not unfrequently the work of the pointer, or of the painter, rather than the laying in regular bond of a design in brickwork by the bricklayer. Such artistic work and careful execution as is instanced in the red brick mansions of the "Queen Anne" style, and other buildings in brickwork in England, where the geometrical knowledge, the artistic taste, and the neat workmanship of the English bricklayer is exemplified with such pleasing effect, is not easily to be found in Paris.

The extent to which ornamentation in bricks and artistic brickwork is adopted by French architects may be fairly judged, since it may be assumed that France, as a whole, is represented at the Exhibition. If any steps had been recently taken to improve the French style of brick buildings, this would certainly have been shown there in some way. I have also examined drawings in the architectural and civil engineering departments, and although these indicate a tendency to more general use of bricks in the provinces, in prison, school, and dwelling-house architecture, yet nothing appears in this material in the way of mouldings, cornices, caps, gauged arches, niches, scrolls, or carving, as is seen in almost every town in England, to a greater or less extent. In fact, ornamentation in domestic architecture does not seem to run very high in France, so far as I could judge from what I saw of Paris, and the few places outside its walls which I visited. The French appear to delight in decorating their public places and edifices to any extent, but do not apply the same rule to their houses, and are therefore very unlike the English, who take pride in the appearance of their homes. This is the cause of the variety of styles, and of the competition in street architecture in England.

The rate of wages paid to the bricklayer in Paris is 70 centimes per hour (*7d.* English) for journey-work. The hours of work are from 6 A. M. until 6 P. M. under one method, and from 6 A. M. until 5.30 P. M. under the other, there being a movement started in Paris which aims at the reduction of the hours of labor. Work is carried on on Sundays the same as on other days. The hours made during the week are 77 under the first and 73½ under the other system. The earnings of the bricklayer in Paris thus amount to 53 francs 90 centimes for a full week of 77 hours, or £2 3s. 1½d. of English money. For 73½ hours the sum is 51 francs 45 centimes, an amount equal in English money to £2 1s.

I understand that a bricklayer will execute about two metres cube of brickwork in a day. That would be equal to laying 990 bricks in 11 hours. This number is less by about 300 to 400 in the 11 hours on similar work as compared with the day's work of the Englishman. I very much question, however, the exactness of this statement from the little I saw of the French mode of bricklaying while at Paris, and from the experience I have had of working with them in Portugal, for about three years.

The cost of bricks per 1,000 in Paris varies from 55 to 64 francs according to quality. The sizes of the ordinary building bricks are somewhat smaller than ours, being 8½ inches by 4½ inches by 2½ inches approximately, and compared with ours for prices are somewhat cheaper, stocks in London now being about 50s. per 1,000 for seconds, while bricks of the second quality in Paris are 60 francs or 48s. per 1,000. Fire-bricks (black) are 70 francs, Bourgogne 85 francs, *refractaires* 100 francs per 1,000.

Tiles range from 50 francs to 105 francs per 1,000, or 40s. to 84s. The first is the price of the ordinary *carreaux à pans rouges* of first quality, or red tiles, the second that of the white Bourgogne tiles.

Portland cement, or *ciment Passy*, which is similar to it, in Paris is 6 francs per 100 kilos, equal to about 2s. 4½d. per bushel, weighing 110 pounds, or 4s. 9½d. a sack of 2 bushels. Roman cement is 5½ francs the 100 kilos, or about 4s. 4½d. the sack of 2 bushels.

One cubic metre of lime costs 21 francs, which would be equivalent to 11s. 9d. per cubic yard.

Plaster of Paris is 18 francs the metre cube, or 27½ bushels. Therefore a 2 bushel sack would be about 1s. 2½d. This price, as compared with ours, seems incredible, being only one fifth of the price charged in England. The cheapness of plaster may account for the almost indiscriminate use of it in building operations. I noticed that the French plasterers do their pricking up with plaster, and use only about one fifth the quantity of laths we do, theirs being nailed about 4½ or 5 inches apart. The ceilings are pricked up, or rather pugged in, on a boarded sheeting, fixed up under the laths, which is afterwards struck, and the finishing done from beneath with plaster also. Brick and stone work is also done in plaster and sand, and external plastering to a very large extent. The plaster comes from Montmartre, Marly, and elsewhere. The depot is on the Quai Jemmapes.

The tools of the French bricklayer differ only in the trowel and mortar-trough. The latter is the same as used in some parts of Scotland, and with mason's fixers, and is similar in shape to a washing-tray. The French trowel would, undoubtedly, be an awkward tool for an English bricklayer to use, as it cannot be employed for cutting or trimming bricks, a process which is accomplished by another tool, the brick-hammer. The spreading the mortar and cutting are both done in England by the trowel, which may be said to serve the purpose of hammer and trowel as well. The French tool seems to be made to suit the trough, rather than for laying bricks and "striking joints." There is a peculiarity about the French laborer's hod, which I saw in use on the ground only; whether it can be carried up a ladder I cannot say. It consists of boards put together to form sides about 1 foot 10 inches by 1 foot 2 inches. These are set at right angles, like the bottom and one side of a box. The side which forms the bottom is then fixed upon two short poles, one to rest on each shoulder, and be held by one hand. The side which stands up prevents the mortar, which is loaded on by an assistant, from slipping down about the bearer's neck and back. There are two brackets fixed to the under side of the poles, which, bearing against the back, serve as stops to prevent this clumsy implement from slipping forward. I

say clumsy, because it cannot be used by less than two men, one to fill and the other to carry. It may be possible that more stuff could be carried by it than by the English hod. But the way in which I saw it loaded did not seem to indicate that it was customary to overload the bearer.

THE NEWLY DISCOVERED ROMAN FRESCOES.

THE Roman archaeological commission has had a ground plan taken of the ancient Tiber house, and one exactly like it is to be built on the grounds of the botanical garden in the Lungara. On its walls are to be placed the lovely frescoes, and in its rooms will be arranged all the articles of art value, found in the Tiber. This house will be the Tiber museum. I have already described these much-talked-of frescoes at length in preceding letters. Every day their value seems to increase. To be sure, a good part of this admiration among officials must be set down to the desire to exculpate themselves for putting in peril the works of Raphael and Sebastien del Piombo; but at the same time it must be admitted these ancient frescoes do possess an indescribable charm, an exquisite feeling for harmony of color, and a close attention to general architectural effect. Some artists of distinction tell me they are much finer than any ancient works of the kind yet found. They have been removed with great care. Artists employed at the Pompeian excavations came to Rome to superintend the delicate work of lifting them off the walls. Cavalier Massuero took drawings from them, which will be published in the monthly "Notizia" of the Lincei Society.

These frescoes give three styles of painting, — light figures on a light ground, on a red ground, and on a black ground. The little squares with girls seated in the open air near Hermes, playing with rabbits, are regarded by artists as the most beautiful of all the frescoes. In the landscapes of this house we have undoubtedly the works of Ludius, the artist of whom Pliny writes. They are the "varietates topiorum," as the ancients called such pictures, — a sort of scenography. Ludius, we are told, was a great dandy, and dressed in a fantastical way. — *Boston Daily Advertiser.*

CLEOPATRA'S NEEDLE.

TO THE EDITORS OF THE AMERICAN ARCHITECT :

Dear Sirs, — Has the *American Architect*, the organ of those whose main business is construction, not destruction, setting up, not taking down, no word of protest against the taking down of Cleopatra's Needle? What single point in history is so marked as that with which the second setting up of this obelisk coincides? The Empire of Egypt, the source of all knowledge, science, and art, ends. The Empire of Rome, the source of those administrative ideas which color all our lives and politics, begins. The Jewish nation expires. The Old Testament is finished. Jesus Christ is crucified. The Christian Era begins.

Such is the era in which this obelisk was set up where it now stands, whether that act was performed, as tradition asserts, by Cleopatra in honor of the birth of her child by Julius Cæsar, or, as held by others, in the reign of Tiberius Cæsar. What site can it stand on so significant as Alexandria, the port by which the Romans entered Egypt, the point of entry from the western to the eastern world?

When Cleopatra's Needle is taken down only four obelisks will remain standing in Egypt. None will remain standing whose interest for us resides, as does this, almost wholly in its standing where it has stood for nearly two thousand years. Its archaeological interest received an irremediable wound when it was wrested from its original site at Heliopolis. That which it thus lost can never be recovered. Such interest as it has since acquired is a historic interest, not an archaeological interest, and resides in the fact of its second erection, and its survival so erected to our time. The interest of its standing nearly two thousand years in its present site, and all the associations of ideas which cluster around the era in the world's history in which it was erected there, will be lost when it is taken down; and that interest can, also, never be recovered. The case is thus wholly different from that of the obelisk rather meaninglessly set up on the Thames Embankment, and which many people are for taking down again and sending back to Egypt, for that was dug up out of the mud in which it had been half-buried and lost for centuries. The only honor which accrues to the English in that matter — that of recovering for the world something lost to it — will be wholly wanting to us if we set this obelisk up in the Central Park; while the dishonor and loss to the world attached to taking it down and removing it from its standing-place of about nineteen hundred years will be ours, and will be remembered against us as long as the obelisk stands or history survives. In the one case something lost is found. In the other something not lost is stolen, and in being stolen receives an injury which is irreparable.

Cleopatra's Needle is not the property of the late or present Khedive of Egypt; it is the property of the educated classes throughout the civilized world. But, though still their property after removal, it will only be a property by that act infinitely diminished in interest and value.

EDWARD T. POTTER.

THE VELOCITY OF WIND. — On October 29, the wind at the summit of Mt. Washington attained a velocity of one hundred and thirty-two miles an hour.

PUBLICATIONS RECEIVED.

THE THIRTY-SIXTH ANNUAL REPORT of the New York Association for Improving the Condition of the Poor, for the year 1879, with a List of Members and Contributors. Organized 1843. Incorporated 1848. New York, 1879.

NOTES AND CLIPPINGS.

FIRE AND BURGLAR PROOF SHUTTERS. — A newly invented fire and burglar proof iron window-shutter was tested on the 13th ult., by fire company No. 6, corner Seventh and Olive Streets, St. Louis. The outward appearance of these shutters is the same as that of iron shutters in general use. Not far from the top of the shutter there is an open space with bars of iron across, in the form of lattice-work, through which a stream of water can be thrown from the hose below. This water falls into an iron sack or pocket, so arranged inside of the shutter in connection with a horizontal bar, and so connected with the bolts fastening the shutters that the weight of the water in the pockets draws these bolts, and the shutters, being hung on inclined hinges, open by their own weight as soon as the bolts are removed. The water is emptied out of these pockets by a plug in their bottoms. The test was applied several times, and all who witnessed the working of these shutters are said to have been entirely satisfied with the trial. Michael Peggott, an employé of the Rohan Brothers, boiler-makers, of St. Louis, is the inventor.

A SUBSTITUTE FOR HAIR IN PLASTERING. — A vegetable fibre is now successfully substituted for hair in the composition of plaster for building purposes. The advantages claimed for it are as follows: First, being of a woody nature, instead of being destroyed when put in the lime, it is preserved, lime being a preserver of wood; second, it is light and bulky, so that one pound, costing but a small sum, is sufficient for a barrel of brown-ing, and two pounds for a barrel of lime scratch-coat; third, it is much stronger than hair, is very light, clean, and entirely free from foreign substances; fourth, it mixes more easily and freely with the plaster than is the case with hair, and also spreads more uniformly through the same. This being the case, the new fibre is greatly superior to the ordinary animal hair; the latter, as is well known, usually containing some thirty per cent of its weight in impurities, — as lime and scrapings of hides, — while the hair itself, by the caustic action of the quicklime used in removing it from the hides, loses much of its original strength.

A GREAT PAINTING IN DANGER. — Andrea del Sarto's famous picture, known as the Madonna del Sacco, which was painted above the entrance door of the old church of the Annunziata in Florence, is said, by a correspondent of *L'Art*, to be in danger of serious injury. It is a case of bad water-pipes. The pipe outside the wall on which the picture is painted leaks so badly that infiltration has taken place in the wall itself; and so serious is the damage already done that, unless measures are immediately taken to remove the fresco, its complete destruction is inevitable. Already the head of St. Joseph "only exists as a remembrance," and the figure of the Virgin is "to be divined rather than seen." This state of things is aggravated by every day's delay, so that very soon, as the sacristan coolly informs his visitors, this magnificent fresco will probably disappear altogether.

GERMANIA VICTRIX. — Schelling, the Dresden sculptor, has completed his gigantic model of the bronze memorial statue, which it was decided soon after the Franco-German War should be erected on the Niederwald near Bingen, as a lasting emblem of Germany's dominion on the Rhine. All the parts of it were recently conveyed from Dresden to Munich, where the work will be cast. They filled eight freight cars. When put together the figure will be 32 feet 9 inches in height, or a little more than one half the height of the famous Bavaria in the Theresa meadow near Munich. The work of making the casting has been intrusted to the Royal Bronze Foundry in Munich, and will consume, it is believed, two and a half or three years.

SEARCHING FOR PHARAOH'S HOSTS. — The modern mania for archaeological research, which has had such interesting results in Italy, Greece, and the Troad, exhibits its most magnificent development in the undertaking of the Abbé Meigne, who proposes, if he can obtain three hundred thousand francs, to undertake the disinterment of the hosts of Pharaoh, "because the finding of the remains of Pharaoh's army would be a powerful reason in favor of the truth of the Holy Scriptures." The course of the flying Children of Israel and their pursuers has been carefully traced by the abbé, and the spot carefully marked where disaster overwhelmed the pursuers. The good abbé seemingly appeals only to the piety of the Christian world, and makes no reference to the possible finding of treasures, — possibly because he shrewdly suspects that the legend may be true, and that in that case total annihilation of everybody and everything was probably worked by the avenging Deity. At all events, this supposition can be pleaded in case the search, if ever begun, yields no fruit.

AN ENGLISH OAK TREE. — The Rev. B. Edwards states that there is in Newland, Gloucestershire, England, an oak tree which measures forty-seven and a half feet in girth. This, however, is not so large as the decaying Cowthorpe oak in Yorkshire, which in 1718 overshadowed half an acre of land, and had a girth of sixty feet. A branch which was torn off at that time yielded five tons of timber.

THE BRIDGE AT DINARD, FRANCE. — A remarkable feat in engineering was brought to a successful issue in the latter part of September, at Dinard, France. In carrying a railway across the river Rance, the novel plan was adopted of building the bridge on shore, and pushing it bodily across the stream. The bridge weighed 2,600,000 pounds; its height above the river was 100 feet, and the length of the main span 314 feet. Twelve windlasses were used in rolling the bridge into position. It was calculated that four or five days would suffice to put the bridge into position; but, owing to the breakage of some chains, it took two weeks.