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THE AMERICAN ARCHITECT AND BUILDING NEWS.

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MAY 25, 1895.



SUMMARY:—

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THE preparation of the plans for the Paris Exposition of 1900 has been confided to M. Bouvard, assisted by MM. Eugène Hénart, Sortais, Tronchet and Louis Varcollier. M. Bouvard had an important part in the construction of the buildings for the Exposition of 1889, and his experience will be of much value. The area covered by the Exposition will be nearly three hundred acres, including the Esplanade of the Invalides, the Champ de Mars, the Cours-la-Reine, the Trocadéro and its garden, and the open spaces along the banks of the Seine. The Palais de l'Industrie is to be removed, and a new avenue, of immense width, carried through in a straight line from the Invalides to the Champs Elysées, crossing the Seine by a new bridge, a hundred metres in width. This new avenue will terminate in the Champs Elysées at the Rond-point Marigny, and at this end, on the right, will be built an enormous Palais des Arts, extending from the new avenue to the Avenue d'Antin. This Palais des Arts is to be a permanent structure, and is to take the place of the old Palais de l'Industrie for the *Salon* exhibitions, and similar purposes, after the Exposition is over. On the left of the entrance to the new avenue, corresponding to the permanent Palais des Arts, is to be a temporary building, the Palais des Expositions Rétrospectives des Beaux-Arts. Lining the new avenue, on each side, will be other temporary buildings of the Exposition, ending in the Champ-de-Mars. Of the buildings remaining in the Champ-de-Mars from the last Exposition only the Galerie des Machines and the Eiffel tower will be retained, the former being utilized for the Agricultural exhibition. The Eiffel tower will not be altered. One of the novel features of the coming Exposition is to be a shaft, a thousand feet deep, into which visitors may descend; and *La Semaine du Bâtiment* sarcastically suggests that these two attractions might with advantage be combined, by inverting the tower, and plugging up the shaft with it.

THE non-union carpenters in London have issued an appeal to all carpenters, joiners, and members of allied trades to unite in resisting the rule of the trades-unions, by which union men are prevented from working with non-union men. They say, in their appeal, that there are in London one hundred and twenty thousand men connected with the building trades who do not belong to the unions, and only thirty thousand members of unions; yet the latter, compactly organized, strictly disciplined, and used without scruple or remorse

for one definite purpose—the coercion of each other, and of non-unionists—hold control of their entire trades. To be without a ticket from the unions means, for a workingman in London, to be kept out of employment, and persecuted and harassed continually; while to apply for and receive a union ticket is, according to the carpenters' circular, to place one's-self "under the most abominable, hateful and humiliating form of coercive government since the Dark Ages." From this dilemma the carpenters hope that building workmen may be rescued by protective organization. We have, however, an idea that the unions have so thoroughly intimidated the workmen, who, we must remember, depending on their wages for their living from day to day, dare not expose themselves to the resentment of the all-powerful tyrants, that the response to the appeal will not be very general, unless some noted public man, or person of courage and wealth, who can afford to disregard the cunning and desperate attacks which will surely be made upon him, shall stand forward as the champion of the "scabs." Behind such a champion, the poor and timid will pluck up courage, and under his leadership something might be accomplished. The thing to be aimed at, however, is not alone the defensive organization of the scabs. The poor people who choose freedom in place of union slavery ought to have some reward in sight before them, and for this purpose the people who can give them employment should be appealed to, and their sympathies enlisted. It is said that the City of London will employ no man without a union ticket. Let private citizens be shown by actual examples how "scabs" are dealt with by the unions, and requested to join in their support and defence. Ordinary people know nothing of the walking-delegate, of his periodical rounds among new buildings to ascertain that every man has a union ticket; they do not see the work on the building stopped, on the discovery of a "scab," unprovided with the piece of pasteboard entitling him to earn a living for himself and his family, and the disheartened withdrawal of the poor man, summarily discharged, as the necessary condition of the resumption of work on the building; they do not hear the sobs of the poor "scab's" wife, as he comes home from one place after another, hunted out of employment by the remorseless tyrants of the unions; nor the cries of his little children, deprived of bread that the demands of the unions may be satisfied. If they did, they would be ready enough to come to the aid of the victims of this gigantic system of oppression, and the best thing that can be done now is to show the public, by many and repeated instances, the true character of its dealings with freemen.

A CURIOUS piece of anarchistic missionary work is, according to the *Builder*, going on in England. An organization, styling itself the "English Land-Restoration League," which has for its avowed object the expulsion of the present owners of real-estate from their lands, and the distribution of their property among "the people," has bought some old "vans," painted them red, and sent them about the country, with orators in them, to preach the doctrines of the League to the rabble of the rural districts. Recently, this precious "League" has published a tract, entitled "Among the Agricultural Laborers with the Red Vans," in which its peculiar theories are emphasized by illustrations, made from photographs, one showing the mansion of a rich land-owner, in Wiltshire, and the others presenting exterior and interior views of one of the laborer's cottages on his estate. As the *Builder* says, the condition of the laborer's cottage, as shown by the photographs, is a disgrace to the landlord, but in what way this confirms the idea that the landlord and the laborer ought to exchange places, we cannot see. In this country, the idea that, because the landlord keeps his house clean, and the tenant keeps his dirty, the dirty tenant ought to move into the clean landlord's house, and the clean landlord's family take possession (if, indeed, the Socialists allow them to live anywhere), of the tenant's filthy habitation, seems too ridiculous for serious consideration; but neither logic nor common-sense have much place in the minds of Socialists, and the fact that the agricultural laborers in England have, for ages, been systematically babied by the so-called "upper classes" makes them all the more willing listeners to the preaching which promises them, in the name of the State, more dandling and sweetmeats still. So far as Wiltshire is concerned, while a

part of it is undoubtedly owned by bad landlords, a great deal is owned by some of the best landlords in England, whose tenants live in houses which, we suspect, are often a good deal too fine for their taste. The Red Van people, who would, apparently, sweep away all landlords indiscriminately, might with advantage, be called upon to say what they would do with the confiscated estates of the aristocrats. Evidently, all the clodhoppers could not be accommodated in the parlors of Wilton and Longleat; some must live in houses outside; and whether these houses, without the care of an enlightened landlord, would, in a few years, be any neater than the filthy cottage of the Socialist pamphlet, is a question which it needs something more than mere Socialist assertion to answer.

A CERTAIN Professor in England lately delivered a lecture, in which, like some other English Professors, he made some singular assertions. His subject was Pre-historic Sanitation, and his discourse treated first of the cave-dwellers. Considering that it is only a few years since we knew that there were any cave-dwellers in Europe, and that our knowledge of them is derived from the discovery of about half-a-dozen caves, containing heaps of ashes and bones, it must have taken a good deal of scientific insight to determine the extent of their sanitary attainments; but the Professor tells us that "they presented us with several sanitary hints," inasmuch as "they always selected those spots where there was natural drainage; and with regard to ventilation, they had, perhaps, too much of it." How the Professor knew whether the people of this age "always" lived in well-drained spots, he does not say, but the fact that some of the caves are found on dry hill-sides does not prove that the great majority of the pre-historic people may not have lived habitually up to their necks in mud. As for the love of ventilation which our remote progenitors showed, it is hardly necessary to say that the bears and wolves afford us quite as valuable "hints" as they in this regard.

COMING down to the Bronze age, the Professor assured his audience that "cremation was the rule," as was shown by evidence to be found "on the undulating surface of the chalk downs of Wiltshire." Considering that "the chalk downs of Wiltshire" are famous for being dotted over with thousands upon thousands of the "barrows," or hemispherical mounds under which are buried the principal personages of what is supposed to have been Bronze-age society, this assertion is even more startling than the account of the passion of the cave-dwellers for abundant ventilation. From the Bronze-age people the Professor shifted to the Romans. The Romans certainly do not belong to prehistoric times, but the Professor said that he wanted to "point out" certain distinctive characteristics of the Roman system of construction, from which his audience "would have something to learn." One of these characteristics was, as he said, that all the buildings of the Romans were "more or less rectangular," and that "there was no jerry-building in those times." Supposing the Pantheon, and the Temple of Vesta, and Hadrian's Mausoleum, and the tomb of Cecilia Metella, and an immense number of other perfectly circular Roman buildings to have been included in the "less rectangular" division of the Professor's classification, it is still unexplained how he should have found out that "there was no jerry-building in those times." Certainly, the Emperors, who spent a good deal of time, to judge from the decrees issued in their name, in trying to lessen the number of buildings which annually fell down about the ears of their inmates, would have been glad to know that these catastrophes were due to something else than the cheap and flimsy construction to which they were ordinarily attributed; but perhaps the Professor's ideas of what constitutes truly sound construction may account for the difference in opinion between him and the Roman authorities. "Their mortar," as he explains, continuing his panegyric on the Roman builders, "was laid on hot, and not allowed to get rotten first, as is the case with us." Possibly the learned Professor is thinking of plastering mortar, which indeed, when injudiciously mixed at the beginning with the hair, loses, by keeping, the tenacity which it derives from the hair; but the idea that lime mortar for masonry ought to be used hot is as astonishing as the one that the Romans used it in that way in decent work. It is well known, on the contrary, that for their best construction the mortar was subjected to a long process of slaking, beating,

and mixing with milk or sugar, before it was used; and if any of the Roman builders used hot lime mortar, they probably did so with exactly the purpose that prompts the same sort of builders to do the same thing at the present day — to get the work up somehow as quickly as possible, and pocket the money for it before its collapse.

THE next Convention of French Architects is to be held at Bordeaux, from the tenth to the thirteenth of June, and, on the ninth of June, the visitors to the Convention will spend a day at Angers. All French architects are invited to take part in the Convention, and probably members of the profession from abroad would be made welcome.

FOR some unexplained reason, *La Semaine des Constructeurs* fell, some months ago, into an inanimate condition, from which it has just awakened, in a new form, as *La Semaine du Bâtiment*. Except that it has a new green cover, new type, and new paper, and a somewhat new arrangement, it seems to be substantially similar to our old and highly valued friend *La Semaine des Constructeurs*, of which it forms professedly a new series, and is conducted by the same skilful hand, that of the accomplished Marcel Daly, who is not only a civil engineer, a graduate of the École Centrale, and a graduate in architecture of the École des Beaux-Arts, and Expert to the Prefectoral Council of the Seine, but a member of the French bar. Those of our readers who wish to begin or renew their acquaintance with one of the best French professional journals, in its new form, should address *La Semaine du Bâtiment*, 23, Rue du Faubourg Poissonnière, Paris. The subscription price is 22 francs a year for France, outside of Paris, and, presumably, the same for foreign countries.

EVERYBODY knows the ingenuity with which the French make preparations for new requirements in their military expeditions, an ingenuity which resembles closely that which the Americans display in their engineering operations for civil purposes. At present, the only military enterprise occupying French attention is the establishment of its influence in Madagascar, and *Le Génie Civil* describes some curious devices which have been invented for the invasion of that country. The capital of Madagascar, Tananarivo, is situated among the mountains of the interior, and is inaccessible, except by foot-paths, the Government having always prohibited the construction of roads by which artillery could be brought against the city. French armies are, however, not deterred by such trifling difficulties, and a campaign against Tananarivo has been carefully planned. As there are no roads, a river, the Ikonpa, which extends from the sea to the foot of the mountains, just below Tananarivo, is to be used as a road. This river is very shallow, and obstructed by sand-bars, and the problem is to construct vessels capable of navigating it. This problem has been solved, so far as the gun-boats are concerned, by building eight compound boats, or rather rafts. Each of these boats is divided longitudinally into six compartments, each compartment being water-tight, and independent, so that it can float alone, while, in case of need, any number of them can be bolted together, side by side. These separate compartments, or shells, are of galvanized steel, and very light, so that they can be easily transported over land, thrown into the water, and bolted together as they float. When in place, a deck is put over them, on which is placed, near the front, a small boiler, of the locomotive type. To balance the weight of this, the engine is set near the rear end of the deck, and is connected directly to a light stern-wheel, which serves for propulsion. An upper deck, on which are the pilot-house, shields of steel plates for riflemen and a light cannon, covers the whole extent of the lower deck. All the vulnerable parts of the craft are protected from musketry by steel shields. The whole affair, with stores, crew and armament, draws less than fifteen inches of water. To provide for passing sand-bars, a powerful turbine pump is placed at the very front of the vessel, with a suction-pipe which can be lowered as required, to any distance less than one metre from the surface of the water. On reaching a sand-bar, this suction-pipe is run out, and the turbine set at work. The sand, mixed with water, is sucked out with great rapidity from in front of the craft, and thrown, by a discharge-pipe, to one side, and a passage through the bar is in this way soon made.

THE SO-CALLED COLONIAL ARCHITECTURE OF THE UNITED STATES.¹—II.

FEATURES.

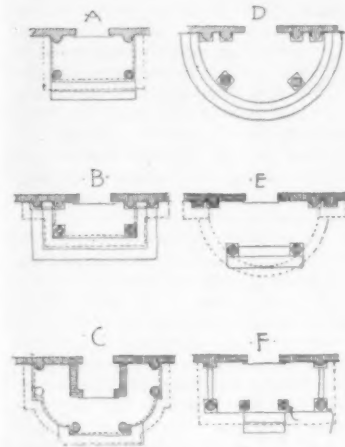


Fig. 9. a. Pierce House, 1780, Salem, Mass. b. Hurd House, 1795, Charlestown, Mass. c. Gov. Langdon House, 1784, Portsmouth, N. H. d. Mount Griddell House, 1800, Charlestown, Mass. e. Tucker House, 1808, Salem, Mass. f. Count Rumford's House, Woburn, Mass.

scrolls, a variety often occurring in Colonial work. Sometimes the modillions, too, were carved, but more often they were left plain, as in Figure 12.

Another device was to leave the doorway itself very simple, and flank it with semi-detached columns or pilasters rising through two stories, as in Longfellow's house. (Fig. 5.) Often, though not always, pilasters were placed on the house corners also. This high order



Fig. 10. Porch in Litchfield, Conn.

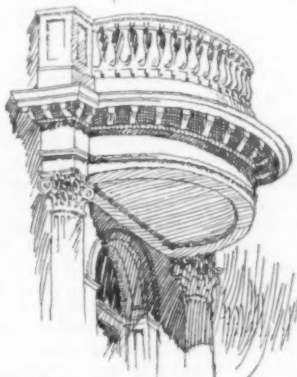


Fig. 11. Porch of Taylor House, 1790, Roxbury, Mass.

involved so wide a frieze in the entablature that it was either entirely omitted, or it occurred only over the columns or pilasters. In some rare instances, the frieze is wide enough to permit of an additional low story on a level with it.

A step toward greater elaboration was to add columns in front of those against the wall, and thus to produce a small portico, usually of slight projection. (Fig. 9 a, b.) Old buildings in New Haven



Fig. 11a. Taylor House, 1790, Roxbury, Mass.

and in other Connecticut towns show an ingenious adaptation of Michael Angelo's device in the Farnese palace, at Rome, where the

¹ Post-Graduate thesis of Mr. O. Z. Cervin, School of Mines, Columbia College. Continued from No. 1012, page 65.

frieze of the entablature over each window is cut into by the opening (Fig. 10). Many small porches by this means gain sufficient height for the doorway without crowding the pediment above the second-story window-sills — a clever solution of a frequently recurring problem. A variation was to omit the free columns and to let the porch extend as a hood over the entrance. (Fig. 11.) These schemes, however, were not sufficiently elaborate for all owners, and many entrance-porches were developed into elaborate verandas, the columns, in some cases, disposed with much ingenuity. (Fig. 9 c, e.)



Fig. 12. Porch of the Hurd House, 1795, Charlestown, Mass.

The two-story veranda, with colossal columns, though not common, occurs in some instances. Count Rumford's house, at Woburn, Mass., has such a porch, with the additional device of the second story carried on a smaller order, similar to the main order. (Fig. 9, f.) It need hardly be said that these colossal orders are a failure, for, if two-story pilasters against the wall dwarf the entire structure, free-standing columns, gaining prominence by projection, have the same effect to a greater degree.

Many Colonial verandas are of generous proportions, cool and inviting. Often, as in Longfellow's home, there are two, though not always as in this case balancing each other.

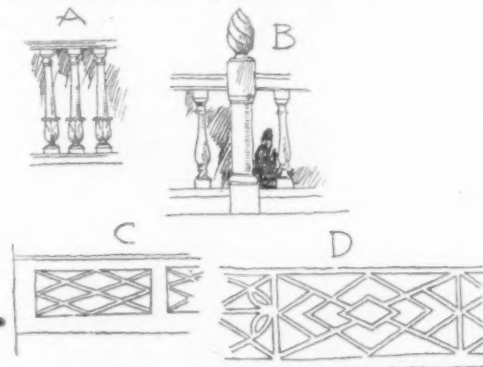


Fig. 13. a. From Gov. Langdon's House, 1784, Portsmouth, N. H. b. From King Hooper's House, 1754, Danvers, Mass. c. From Hall House, 1785, Medford, Mass. d. From Count Rumford's House, Woburn, Mass.

Much attention was bestowed upon the doorways. It was usual to enclose the doors with a framing of glass — transoms and side-lights — of great variety in treatment though fundamentally the same in idea.

The main cornice is, in general, well proportioned to the building; smaller in the earlier examples, in which it serves merely as a



Fig. 14. Rear Dormer: Count Rumford's House, Woburn, Mass.

transition to the roof, than in the later structure, where it is itself the crowning member. In section, it is commonly based upon the Corinthian, though the modillions are seldom carved. Under

the brackets, there is, in the best examples, a row of dentils, giving life and variety to the whole. The omission of the frieze and the use of colossal orders have already been mentioned.

The roof-balustrades are of two varieties. One consists of light turned, or carved, spindles, with larger ones on the corners and at intervals of fifteen or twenty of the smaller ones. Sometimes square pedestals take their places. The other variety consists of some pattern of

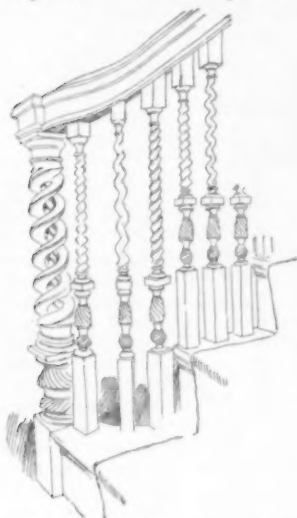


Fig. 15. From the Hodges House, Salem, Mass.

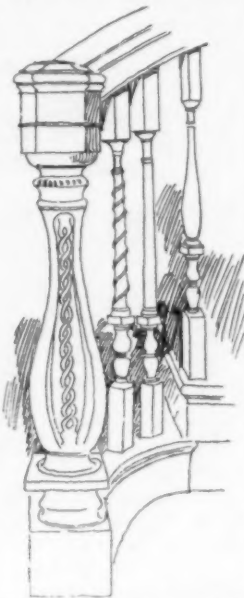


Fig. 16. From the Gov. Langdon House, Portsmouth, N. H.

open lattice-work, in panels between pedestals. Figure 13 illustrates both varieties.

The corners gain an appearance of strength by the use of pilasters or of quoins. In several instances, the imitation courses of quoins are continued across the whole façade, so as to simulate stone rustication. Old "King" Hooper was not above pretending to live in a

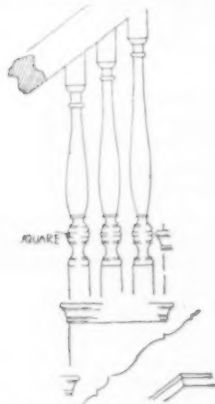


Fig. 17. From Litchfield, Conn.

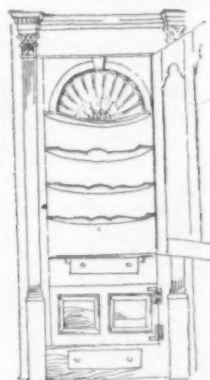


Fig. 18. From the Jaffrey House, 1730, Portsmouth, N. H.

stone house. This spirit of pretension was the logical result of the one which considered it unbecoming to live in a log house, and so concealed the logs with clapboards or with shingles. But clapboards and shingles had better excuse, for they were useful in keeping out the cold.

A review of the exterior features would be incomplete without a reference to the so-called Palladian windows. A treatment of large openings, similar to that of Figure 56, from Maryland, occurred quite frequently in the New England and Middle colonies. Ultimately, the idea is derived from Palladio's

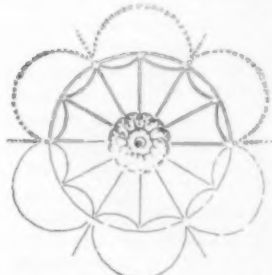


Fig. 19. Plaster Ceiling, Salem, Mass.

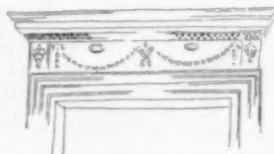


Fig. 20. Door, Salem, Mass.

ingenious device of two columns and two pilasters with an arch between the columns of a larger order. An interesting variety occurs in the old Boston Library. (Fig. 26.)

Other windows are simply treated — usually enclosed with some mouldings and a light cap over. An ingenious variation, from Massachusetts, is illustrated in Figure 7.

The treatment of dormers, too, is simple. Usually they are narrow and high, crowned with plain steep pediments, sometimes alternating with round or broken ones. Flat-roofed dormers were rare. The bold projections of the dormers from the roof constitute them one of the most striking features. It is strange that there was so little of effort for variety by giving the dormer greater breadth, and adding mullions, or even by developing it into a prominent gable. The gable (Fig. 14) from Count Rumford's house is quite unique.

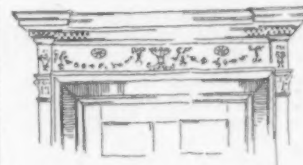


Fig. 21. Parlor Door: Nichols, or Pierce, House, 1780, Salem, Mass.

Color is the only other exterior feature worthy of remark. Modern imitators would lead us to believe that it was universal to paint the ground a darker, usually a yellow color; and to pick out the trimmings in white. But few photographs show this — the color usually being a monotonous white. There are even some instances in which the trimmings are darker than the ground. An indefatigable inquirer tells us that originally Venetian red was universally used. Yellow and white came later. By carefully scraping off the successive coats of paint, red was found to underlie the others.

In brick buildings, the trimmings were of white stone or of wood painted white, pleasingly contrasting with the general red tone.

INTERIORS.

In the interior, the staircase-hall, with its generous allotment of room, is quite remarkable. The hall can be made the most effective of all the rooms, for it has the first and the last chance to make a good impression upon the visitor. The value of this was not lost sight of, since Colonial houses seem to be the very embodiment of generosity.

The stairs are broad and easy, with neat turned, or often hand-carved scroll, balusters and newels. In some of the best examples carved brackets decorated each tread, similar to that shown by Figure 64, from the South.

The ceilings often have a richly moulded cornice with Corinthian modillions. The flat surface is sometimes decorated with some pattern-ornament in plaster, though it was generally left plain. A similar treatment is sometimes applied to the soffit of the stairs.

The walls are wainscoted, after the English manner, usually three feet high or so, though often all the way up to the ceiling, in large panels of wood. In some of the best houses, Dutch scenic wall-paper was preferred.

The fireplaces, with their mantelpieces often carried up to the ceiling, are the main features of the other rooms. These mantels are remarkable for delicacy in ornament and in detail. The orders often used to support the shelf are, with the greatest propriety, attenuated, sometimes to even twice the number of diameters, or even more. Much hand-carving occurs, such as delicate fluting, balls, beads, eggs-and-darts, figures and geometric patterns, and a very charming low-relief ornament, based upon the decorative work of the brothers Adam, in England. French rococo ornament is to be found in some very rare instances only.

It is worthy of notice, that though the Italian rococo spread to most countries and stamped its characteristics upon every branch of art, the New England colonies escaped almost unharmed. Rococo, as a period of art, was in them unknown. The Colonial style, though adopted from Classic motives, never became very formal, and so never felt the need of a reaction. This style did not succumb through the throwing off of all restraint, but through the Greek

revival and through the almost simultaneous second flood of immigration in the beginning of this century.

The treatment of the door and window finish exhibits almost every variety which the Renaissance has bequeathed to us. Flanking pilasters with plain, broken or carved pediments occur frequently. If any one thing can be said to be characteristic, it is the decoration of the panels, either carved or of putty, with motives just spoken of as borrowed from the brothers Adam. (Figs. 20, 21.) Ultimately, they are based upon Roman festoons. The modelling is so exquisite, and they are, moreover, capable of so much variety in disposition



Fig. 26. Old Boston Library.

as to justify the eagerness with which the colonists used them. Happy, indeed, is the evolution of the heavy Roman festoon to a string of forget-me-nots, each smaller than the preceding, each festoon bound to the next with a delicate ribbon. The door finish

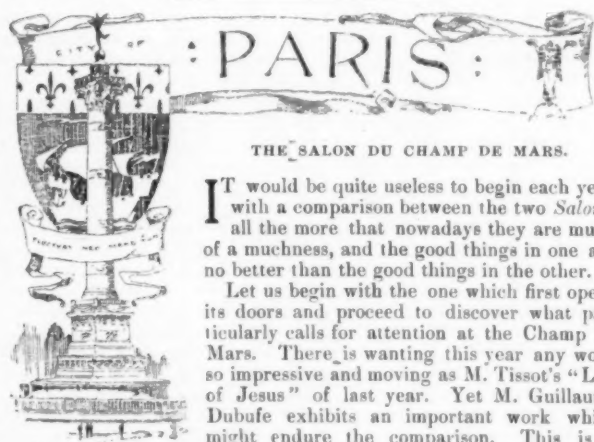
designs (Figs. 20, 21) are well worthy the emulation, not to say the envy, of a modern architect.

Of necessity, all the peculiarities have not been pointed out, nor, indeed, have all types been referred to. The reader's mind has perhaps reverted to tales of romance which have ended Colonial life with absorbing interest. "The House of Seven Gables" may, in advance, have suggested a complete picture; a picture full of turrets and gables and all manner of broken sky-lines, but nothing of simple, dignified, Classical fronts. But Hawthorne, according to his son's biography, had little sense of locality or taste for absolutely correct description. Though he did not invent his architecture, he did that which is hardly less deceptive: he picked out exceptional cases and altered these to suit his fancy, which found but little of value in Classic symmetry.

Picturesqueness, though not a characteristic, is not entirely lacking. It occurs mostly in cottages, some of which with their prim gables seem magically transported from England. Another source of picturesqueness is that of gradual addition to a small nucleus, as in Figure 3. Peter Avery had bought a condemned church and this he tried to incorporate with the older part of his home. The result is certainly quaint.

We have in the preceding, considered a series of homes of the people, structures far less pretentious than, and, therefore, not comparable with, the palaces of Italy, the châteaux of France, or the manors of England. Although every detail of our Colonial work might be traced to some European prototype, the general resemblance is slight. Time, distance and materials contributed on this side of the water to produce a style of domestic architecture of marked individuality, dignified without being formal, pure, simple, homelike and peerless. Peerless—yes. For, whether it be that this is the only domestic architecture worthy of much consideration, or that only Americans have thought it worth while to study the houses of their forefathers, it is a fact that no other style is nearly so fully recorded, or illustrated in so abundant a literature.

(To be continued.)



IT would be quite useless to begin each year with a comparison between the two *Salons*, all the more that nowadays they are much of a muchness, and the good things in one are no better than the good things in the other.

Let us begin with the one which first opens its doors and proceed to discover what particularly calls for attention at the Champ de Mars. There is wanting this year any work so impressive and moving as M. Tissot's "Life of Jesus" of last year. Yet M. Guillaume Dubufe exhibits an important work which might endure the comparison. This is a series of water-color drawings prepared for the illustration of a magnificent book to be published by Boussois & Valadon under the title: "Les Heures de la très Sainte Vierge Marie," and they have the charm of exquisite idealization while the execution is perfect and of a rare distinction: the artist in them gives proof of remarkable ability and a greatness in decorative imaginings. They lack, however, the power to call out that soft emotion, touching or dramatic, which was excited last year by Tissot's work, an emotion which ought to have been revived by the identical episodes in the life of the Virgin, but which M. Dubufe expresses rather like the happenings of a dream or a fair mystic legend.

What the *Salon du Champ de Mars* is lacking in this year is novelty, and the Société Nationale des Beaux-Arts is all the more open to complaint on this head because, at the outset, it posed as the renovator of the arts. Now, the exhibition this year absolutely resembles that of last: here are the same *partis pris*, the same processes, the same trade tricks. Trade—*métier*—oh! there's a word to make these "reformers" of art gnash their teeth! Having discovered new mannerisms, they imagine that that is enough, and think not of abandoning it, although it grows old and palls on the observer much more quickly than the old moulds which they thought they had destroyed, whereas they simply have replaced them with others.

I shall touch on this again when I deal with M. Carrière's exhibit, but now I must take up a work which ought to particularly interest the readers of a Boston journal, I mean the grand decoration intended for the staircase of the new Public Library, of which M. Puvis de Chavannes offers to Parisians the first view. It is the work that first attracts the visitor's attention. This fine and large panel, styled "Les Muses inspiratrices acclament le Génie, messenger de lumière," without being one of the most important of the artist's compositions, contains qualities of charm and tranquil majesty which frame-in happily with the lines of the architecture. It is always a delicate matter to pass judgment on a piece of decorative painting seen by itself and out of relation with its intended surroundings.

The magnificent decoration of the amphitheatre of the Sorbonne, when it was exhibited at the *Salon*, only half pleased me, and I reserved my judgment on several points. When I finally saw it in place, I was wonder-struck. This experience renders me prudent in face of the new work which you will soon see in Boston in its true place, amid its intended surroundings. Even here, thanks to its position under the great central dome, it can be seen at a suitable distance.

Against a sky of golden-yellow hue the sea extends its horizon-line of blue sufficiently strong in tone to dominate the whole decoration. On a meadow, the pale herbage of which is hardly stirred by their weight, the Muses are turned toward the Genius in the centre of the composition whom they acclaim. The floating white draperies in which they are clad stand out against the background of blue sea and convert them into ideal and aerial forms. The composition is of extreme simplicity as it is to be enframed by the Classic architecture of the building. It is likewise, as always, a simplification of drawing reduced to a general silhouette and the leading lines of the figures, which are left in luminous half-tones with the elements of the faces hardly indicated.

Each year the *Salons* contain a certain number of canvases of more or less importance intended for our Hôtel de Ville. This year there are two large ones by MM. Roll and Lhermitte, both justly remarkable. The "Joys of Life," by M. Roll, is an immense panel very full of light, very gay and filled with flowers and women. On the left a certain number of women—in Eve's undress—are sporting on the grass by the side of a rivolet: above and a little farther off are others dancing, while others are half hidden by the shrubbery. At the right is a winding pathway whose shady ways ill conceal sundry groups of lovers. In the centre three musicians clad, alas! in frock-coats are seated in the midst of the flowers, and their modern garb, of course, interjects a discord into this ideal and decorative composition. Apart from this, it is a beautiful composition, the masses of verdure are delightfully treated, without any monotony of tone, and light is used with profusion but without violence.

M. Lhermitte has sought a less ideal and poetic composition. It is modern popular life that has attracted him, the life of Paris with all its most active materialism: the Halles. He has painted them with all their movement, their crowds and encumbrances. It is a street filled with marketmen and women, the vehicles of market-gardeners, vegetables and provisions of all kinds, with figures in the foreground more than life-size and with no sacrifice of details. Attention is not drawn to any single point in this painting, which is executed with all the perfection of a still-life study, for the subject is well composed, the expression is truthful and exact, and the types are extraordinarily true to nature. The background with the Eglise de St. Eustache and the Rue Montmartre is charming. Everywhere there is atmosphere, and the figures and accessories have a most astonishing relief. It is fine and solid painting. This and the works of M. Roll and M. Puvis de Chavannes make the three finest paintings at the exhibition.

Amid the sculpture we shall find a subject that may move us more, but amongst the paintings it only remains to pick out from the *banal* and commonplace some few which particularly demand attention.

"Jours hereux," by M. E. Friant, presents a little peasant girl crowned with flowers by her older sister in the foreground of a sunny meadow, while she laughs with joy. At the right stands the grandmother looking on in placid enjoyment, while the parents are stretched at length on the grass behind her. The background of mountains is luminous, and in spite of a somewhat heavy group of trees the subject is decorative, though the handling is somewhat heavy.

We note, now, the absence of Carolus-Duran, whose portraits usually are a feature of these shows, and was M. Beraud disgusted with last year's criticism that he shows nothing this year? But amongst others, we find M. Carrière, always faithful to his post, who exhibits a canvas representing the "popular theatre," as seen from the upper gallery. This, then, is what one comes to when willing to carry the process of simplification to extremes and ends by suppressing drawing as he had before banished color! I have seen many theatres where the spectators follow the performance with rapt absorption, but I have seen none such as this of M. Carrière's. This is an assemblage of smoke-encircled phantoms, living, perhaps, but deprived of all material and human form: it is an enormous piece of *grisaille* work, but hardly sketched in. A few whitish gleams light the lugubrious scene, out of which a very decent etching might be made for use as an unframed cut in the midst of type. But in a painting one has a right to demand both form and color. Here there is neither. M. Carrière sticks to one treatment for every subject, he uses always the same system of *grisaille* work, dying out in smoke. This is not painting, and I would like to know what is to become of it when time shall have added its patina to these visions that are even now half snuffed out.

Such regrets and reproaches are out of place when one looks at the fine decorative paintings of M. La Touche, for here the palette is a little too vivid. His four seasons form four luminous and brilliant panels where young girls dance, or flowers bloom, or snow and swans lend gleams of white, or jets of water fall in silvery dust. The panel that stands for autumn is rather marred by a too lavish fall of dead leaves, which make great blotches of yellow on the canvas. M. La Touche has also painted an "Apotheosis of Watteau," which is less successful: in spite of the brilliancy of coloring, it is heavy and is greatly wanting in precision and delicacy. Poor Watteau! M. Stevens can always count on a certain number of admirers of his elaborate and old-fashioned handling. If his painting

reflects an epoch, it may hereafter be asked what epoch he belonged to, and the chances are that the answer will be a half century out of the way. His portraits are not modern, his landscapes are heavy and out of date, and his "View of Monaco" lacks that Southern light which M. Montenard knows so well how to produce.

M. Kroyer has painted a very pretty little thing called "A Quiet Evening on the Beach at Skagen." Two young girls in light dresses are walking over the gray sands by the light of a setting moon. The sea disappears in the distance in a mist that blends it with the sky, while the whole composition expresses truly both quiet and grandeur.

Much talk is heard about M. Burnand's "Flight of Charles the Rash after the Battle of Morat," but I avow that I do not admire this large canvas: it is harsh and dry. Charles on horseback and followed by his warriors, armed like himself, flies at full gallop, his eye fixed, his body upright in the saddle. The movement is well indicated, but, in my opinion, the huge horses have too much importance and the armor is treated in too uniform a manner.

M. Besnard always looks out for bizarre effects. Others have painted in the Orient without finding there red, violet or green horses. He, however, sees them that way, and, moreover, gives them so much transparency that the poor beasts look as if they were illuminated inside. His "Port d'Alger" is a mere sketch in yellow and violet and blue: his female figures are strange and the whole thing is rather crazy.

Sir E. Burne-Jones, who last year obtained rather a success, has less of it this year with his "Love among the Ruins." Why ruins, I wonder? If there be a meaning, it is not clearly expressed. Moreover, the two figures quietly seated on architectural fragments do not strongly suggest love. It might as well be called Memory, Meditation, or anything else. But whatever the title, the painting is one of rare finish. The young girl's head is pretty and her eyes reflect a heart full of pure feeling, but the dress is of such a vulgar blue! The artist also exhibits a profile portrait of a woman in black. The features are delicate, but there never can have been blood beneath that waxen skin.

Amongst the new portrait painters must be named Mr. Alexander, who shows a series of portraits of women in voluminous skirts and generally painted in a wan light. They are not pleasing to look at, although evidently the work of a skilful hand. M. Mathey has a "succès de curiosité" with his great official portrait of the Duc d'Orléans. It is a good painting and a correct one, but it benefits greatly by the curiosity which the model excites.

Mr. Stewart—Americans are plentiful here at the Champ de Mars—is a clever *genre* painter. By the side of a pretty portrait of a woman he hangs an elegant canvas, "Lunch Aboard," a scene on the deck of a yacht made gay by the presence of young and elegant dames and damsels. It is rather far-fetched, but the drawing is sure and the study has been serious and not slighted.

Of the painters who are always graceful in their representation of female nudity, M. Aublet must not be overlooked; his handling perfectly suits the transparent and anemic woman. To excite a more real, more human emotion one has only to look upon the very beautiful canvas of M. Couturier, "L'Abandonné": on the deck of a vessel, tossed by the tempest, officers and men stand silent as the ship's chaplain gives a parting blessing to a poor sailor who has fallen into the sea and who cannot be saved. The body is already hidden beneath the waves and the spot where he sinks is only indicated by a flock of gulls hovering over it. It is a fine and impressive scene.

Of the good landscapists, and there are many, it is enough to mention MM. Cazin, Billotte, Damoye, Durst and Iwill; of the poor ones, and the worst of the lot, M. Sisley.

In sculpture there is not much besides the remarkable composition of M. Bartholomé; all the rest are such exhibits as are common at the salons—we are always shown the same sort of thing both as groups and as busts. The bust of the new President of the Republic, by M. St. Marceaux, naturally attracts notice. M. Rodin shows two busts in the manner lately affected by him—a rough block of marble, that is, with the partly finished head standing out from it. In one case, the chin is not yet disentangled from the block and so the head has no neck; in the other, a man's head in profile, the whole of one side is in unworked marble. They can hardly be called busts, and as a method, while it was interesting enough for once, it hardly does to repeat it.

Let us turn, then, to a work that breathes a higher art. M. Bartholomé's "Monument aux Morts." In the base of this monument, or, rather, this wall, whose lower portion projects somewhat, has been managed a niche-like excavation, in the floor of which has been dug a grave. In it, hand clasped in hand, lie the bodies of a man and woman, her face turned toward the one she loved in life. The body of an infant lies across the parents' knees. At the back of the niche, by the brink of the grave, kneels a female figure with outstretched arms, symbolizing the words engraved in the stone beside her: "*Sur ceux qui habitaient le pays de l'ombre de la mort, une lumière resplendit.*"

Above, in the naked wall, opens the door of the Unknown, across whose threshold pass the figures of a man and woman, she leaning on his shoulder. The woman seems to draw back at sight of the shadows mid which she is about to bury herself; but the man is more resolved seemingly, and these opposite feelings, expressed by the movement and attitude of the two figures, which are seen back to, is very cleverly indicated. Upon either side of the door are several

figures, in divers attitudes of grief and despair, who stretch their arms out towards those once loved who are about to disappear forever. From this can be seen what a grand and noble idea of the irreparable and of human grief this magnificent piece of sculpture evokes in the observer: each figure is admirable in attitude and modelling and the composition excites a penetrating and sorrowful emotion.

This year, as last, the *Salon du Champ de Mars* gives up much space to *objets d'art*. In this section are many pieces of bric-à-brac and some pieces of furniture of forms that are merely complicated and eccentric, while pretending to be novel and original. This sort of effort is drivelling childishness. Could anything be more absurd than to work in the corner of a toilet-mirror a spider's web, which merely excites the wish that it were a real one so that it could be wiped away? If an artist of M. Gallé's ability condescends to such a puerility, how can one wonder at the eccentricities evolved by others who have neither his experience nor artistic education?

The architectural exhibits present nothing striking, though in several cases the dryness of the plans and elevations is enlivened by the presence of sundry working models. This is well and deserves to be encouraged, but heed must be taken that the architectural section is not converted into an exhibition of specimens of industrial art.

THE DISCUSSION ON SOUND IN ITS RELATION TO BUILDINGS.¹

PROF. T. ROGERS SMITH [F.] acknowledged the author's reference to his book, "*The Acoustics of Public Buildings*," and said that the work was being reprinted, and would shortly be published. To his mind the most valuable and most interesting part of the excellent paper they had listened to was that which dealt with the condition of the atmosphere in rooms. That was, he thought, a comparatively new point, and the experiments referred to were very interesting; they showed almost beyond doubt that unless the condition of the atmosphere in a room were homogeneous there must be some difficulty in the radiation of sound, and suggested rather new ideas as to the possibility of improving the hearing in theatres and buildings of that sort, and the necessity of preserving the atmosphere at a tolerably uniform temperature and quality. If that could be carried farther, it would lead to exceedingly interesting results. He thought it very desirable that experiments of other sorts should be conducted, and the results recorded. To some extent every building was more or less of an experiment. If the Science Committee would secure a collection of observations upon interiors, their dimensions, their materials, whether they were successful for music, whether they were successful for speaking—for the two things were very different—and if they were not successful for either one or the other, whether they were uniformly bad, or whether they were bad at one place and good at another place; observations like those, if they were tabulated with regard to a considerable number of known buildings, and by careful observers, would, perhaps, throw additional light upon what was confessedly and undoubtedly a very obscure subject when applied to practice. The observers, of course, should be skilled and careful, for he noted that among the observers Mr. Burrows had quoted, one had said that Her Majesty's Theatre was bad for sound. That, he thought, was the greatest mistake that any observer could possibly have made. There were two—he referred to the old one, the real one, which was lined with wood like a match-box, and which was a most wonderful place. Music, it seemed to him, never sounded as it sounded in that building. He was not sure that the Albert Hall deserved to be called a failure. A building where five, six or seven thousand people were in the habit of congregating every fortnight to hear music, and heard it with delight and success, could not be called a complete failure. There was, no doubt, a considerable amount of echo. In the early stages of the construction of the building, when it was full of timber [there was an enormous timber staging], the hall promised to be a most wonderful place for sound. He was there repeatedly at that time, and singing and playing on the fife or flute could be heard with the utmost distinctness in every part of the building. When the timber was taken down the echo from the roof was found to be very great. His own impression was that the echo was not from the glass roof, but from the large cove. With regard to another elliptical building where an echo had been found, he had an opportunity of tracing very carefully the actual lines that sounds from a certain point would make if they went up to the cove and were reflected down into the building. He found that they fell in a line forming an oval, and that on a corresponding portion of the floor where the seats were, the people had difficulty in hearing, so that it appeared pretty clear that the cove had been, in that instance at least, an echoing surface, and he suspected that the echoes which were heard, and which to some extent, notwithstanding that the velarium had checked them, were still heard in the Albert Hall, were due more to the cove than to the glass roof. Mr. Burrows had not said quite as much about echo as perhaps that subject deserved; he [the speaker] would like to say one or two words on that subject. His experience, in endeavoring to unravel the defects of rooms where people found difficulty in hearing, had led him to believe that echo was by far the most mischievous of the defects. The places where the greatest difficulty of hearing was experienced were

¹ See last issue for paper read by Mr. Burrows before the Royal Institute of British Architects.

those where there were bare flat walls against which the speaker's voice could impinge, and those walls at such a level that the sound of the voice striking upon the wall was reflected level to the ears of some of the audience. Mr. Burrows had mentioned one of the theatres at University College—and a rather remarkable instance of echo had been developed by an alteration made there. He had mentioned two theatres which were one above the other, and both pretty nearly of the same size, though not quite of the same arrangement. In the lower one the echo was most distinct. This theatre was formerly a very good building for speaking and hearing, the slope of the seats being high, and the wall consequently completely masked and clothed by the sloping seats. The authorities of the College thought it would be desirable—for reasons which were connected with safety in case of fire—to alter the seating, and they gave it a much flatter slope. Since then it had been infested by a most conspicuous echo, which made speaking very difficult. Echo would develop itself even in comparatively small rooms. His impression was that a less distance than 55 feet referred to by Mr. Burrows was quite sufficient for that purpose; and his idea was that if they took the difference between the direct path of the sound from the speaker to a hearer, and the length of the reflected path—supposing the sound was reflected from a wall to the same hearer—and found them to differ by more than 40 feet, an interference from echo was perceptible, and when it became a little more than 40 feet, was very perceptible. Consequently, in a room no more than 20 feet across, a man might hear the echo of his own voice; and that, he thought, would be confirmed by those who were in the habit of speaking in a room, not much larger than that, which was very bare and very reflective. Consequently, the presence of large flat surfaces which were good reflectors was a very formidable enemy, and the breaking up, the masking them, the putting galleries or columns in front of them, the introduction of all kinds of architectural forms which would break them up and make them bad reflectors, was one of the best means for ensuring freedom from echo. The other point, resonance, was more difficult to deal with. There was no doubt that, up to a certain point, resonance was an advantage, and where music only was to be dealt with, an extraordinary amount of resonance could not only be endured, but enjoyed. In such a place as Westminster Abbey, or still more in Canterbury Cathedral, the wonderful amount of resonance was a striking feature. After a chord had been sung by the choir, and the voices had ceased, the sound was heard reverberating above for several seconds. It required a very skilful speaker or reader to speak or read in a church of that sort without disturbing the resonance to such an extent as to make his words quite indistinct. As all knew, large numbers of persons could be made to hear clearly and distinctly in Westminster Abbey, and therefore, it was clear that a great amount of resonance could be tolerated, especially if the person speaking or reading knew how to manage and modulate his voice to keep it at a level. He would conclude by proposing a vote of thanks to Mr. Burrows for his exceedingly interesting and comprehensive paper.

Mr. J. Tuccor Perry [A.] seconded the vote of thanks, and said that as Mr. Burrows had mentioned a building of his [the speaker's] as being successful in the matter of resonance, he would explain how he had arrived at its mode of construction. In a house he had built on a very exposed part of the coast by Dover, he had used concrete almost entirely—concrete filled-in between brick skins. A year afterwards he asked his client if he were perfectly satisfied with it, and he said that the only thing he was troubled with was its resonance. If there was a gale blowing, he could hear the house hum; if there was a hurricane blowing, the glasses in the house rattled. He [the speaker] had learned his lesson. Two or three years afterwards he had to build the Alhambra Theatre, and he built it of concrete—roof, floor and galleries—and he believed the success was due to the use of concrete.

Mr. H. H. Statham [F.] had not studied the subject from the scientific acoustic point-of-view, but he was rather consoled by the reflection that all those who had studied the subject of acoustics scientifically differed as to what ought to be done. He would give some results of his observations during a good many years on the effect of different buildings in regard to music. He quite agreed with the authorities quoted by Mr. Burrows, to the effect that a building might be very good for speaking and very bad for music. A building which might be very good for one person standing at a particular point might be quite unsatisfactory for a number of performers to be heard together. In regard to the question of resonance, there was a good deal of confusion of ideas. He was well acquainted with one building which produced very strong echoes indeed—that was St. George's Hall, Liverpool—which was composed entirely of hard materials—granite columns, cement walls. The floor at first was a tiled one, but afterwards, a wooden floor was put in. But all the walls were composed of hard reflecting materials. The echo, when the organ was playing, was tremendous. The eminent organist, Mr. Best, who had for many years played there, had remarked to him [the speaker]—and the remark struck him as a very odd one—that that hall, no doubt, "helped the organ very much"—he meant helped the tone of it—that there was a grand roll after a chord was struck. That was just what had been referred to by Professor Roger Smith in regard to one of the cathedrals. That was one thing. But the appreciation of what one might call complicated musical compositions was quite another thing. There, echo was not wanted. Everything must be distinct and clear. In St. George's

Hall, as in some cathedrals, a very grand effect was produced when a chord was struck, but if one of Bach's fugues were played, it was all a muddle in consequence of the echo. So that while people were carried away by the desire for that resonant effect, they were spoiling the effect of complicated music at the same time. A hall very much upholstered prevented all echo, and was, on the whole, good for clearness of effect in instrumental music. Solo singers, on the other hand, complained that such a room did not help them at all. There was no echo, but it did not help the voice. He had had experience of that also in another hall which was exceedingly full of upholstery. One never heard the least bit of echo, but one felt that the hall was bad for the singer. The singer wanted more echo than a band or organ required, and that was one of their greatest difficulties—to steer clear between these various considerations. Considering its size, he thought the Albert Hall was a wonderfully good building for sound. The real difficulty was that it was too large to avoid echo. In enclosing such a large space with walls, the passage of sound to the end and back was so slow that the ear took cognizance of the interval; and in such a case, they must have echo to some extent. He was told that the echo in the Albert Hall was terrible before the velarium was put up, and that was what he should have expected. He should say that a concave roof of glass and iron over it was simply a form of reflector to focus the sound back again. The real mistake was that the hall was too large properly to hear in, and it was of a wrong shape. It was a general rule in all concert-rooms (to use a proverbial term) "that the audience should face the music," whereas when the audience were placed on a circle or ellipse, all those who were up close to the music would hear one side of it, and not the other. That was partly the cause of the complaints made of the Albert Hall. The trumpet-shaped orchestra, at Queen's Hall, had practically proved a success. Having attended for many years the Philharmonic Concerts at the old hall at St. James's, and now at the Queen's Hall, he could testify that in the latter, which held about one-third more people, one heard quite as well; and that was certainly a remarkable fact. The fact that shadow-sounds were formed by the columns of churches could not be denied. Whenever one sat behind a column, one was conscious of a certain added difficulty in hearing, and he was surprised that that should be questioned by anybody. Reference had been made to Dr. Parker's City Temple. He should like to bear testimony to his experience of that as a room for music. He had heard a great organist give a recital there, and he had never heard him before except at St. George's Hall, where he had heard him over and over again. He [the speaker] remarked to him afterwards: "I never realized before what a brilliant pedal player you were, because it was the first time I have heard you without an echo; one could hear all the pedal passages exactly." He could not remember precisely what the plan and materials of the City Temple were, but it was a most satisfactory room for music, and it might be worth while to find out the reason. As to harmonic proportion, he believed it was perfectly true that by arranging rooms in certain harmonic proportions one could get them to respond to a certain note. This brought them back to the old difference between what was good for a single voice and what was good for an orchestra or for music. It was very convenient for a public speaker to find that by pitching his voice to a certain note he could make himself heard. But then, the very essence of music was that it did not keep to one note, it ranged over a great many, and there was nothing more annoying when listening to music—it especially occurred with the organ—than to find one particular tone of the instrument strongly reinforced. To plan a building in order to get a particular note reinforced could only be successful when it was wanted for public speaking alone. It was a mistake for music; music demanded so much more that they must put that consideration on one side. As to the materials for that class of building, it appeared to him that wood and fibrous plaster were the best—that they reinforced sound without making sharp echoes. His observation had been that all substances which reflected light rather sharply reflected sound sharply, and, consequently, produced distracting echoes. So that in constructing the walls of rooms those substances should be used which vibrated with the sound, and, therefore, helped it, without reflecting it back again strongly. Those substances, he thought, were wood and fibrous plaster—hollow wood lining more than any others. The paper was a very useful one, as bringing together a great many facts and experiences. Perhaps it would suggest other experiments and further observations, which might help the subject along.

Professor Aitchison [F., A. R. A., expressed his appreciation of the paper, and thanked the author for the trouble he had taken in collecting so much useful and interesting information on the subject before them. When he was at college the only practical outcome of the lectures on acoustics was that the students would cover a piece of glass uniformly with sand, and make different notes on the edge of it with a fiddle bow, and note the patterns into which the grains disposed themselves. With all respect for the opinion of the late Astronomer Royal, he thought his contention could only be partially true; for an effect similar to that in the whispering gallery, at St. Paul's, was produced at Leeds by a circular retaining-wall which was uncovered. It was cut into four quadrants by four streets, and words whispered at one end of the quadrant could be heard at the other end. One of the earliest alterations, he recollected, to improve the sound in a building was made many years ago at Exeter Hall; a segmental ceiling was put to it in place of the

lanterns. The statement was both curious and new to him that when sound impinged on a flat wall at the back of the speaker at a very acute angle, it was reflected by waves instead of by a straight line. Any room in the shape of a double cube had been noticed to have an echo. He was once at a church in Italy, at Faenza, he believed, where there were twenty-one echoes in the nave; each compartment or arcade looked to him like a double cube and was domed over. The repeated echoes were very pronounced. He had noticed at long dining-tables, where there was one of those ventilating gas-lights that looked like a stretched arm with an enormous boxing-glove on it, that if the speaker at one end of the table threw up his head, his words could not be distinctly heard at the other. Sir C. Wren is reported in the *Parentalia* to have said in regard to the pulpit in a church, "A moderate voice may be heard 50 feet distant before the preacher, 30 feet on each side, and 20 behind the pulpit." He did not know that the ancient amphitheatres were much used for speaking in. The Roman theatres, according to Vitruvius, were a semicircle, or nearly so, while those of the Greeks were more than a semicircle, and were not cut off by a straight line, but by the radii; but those theatres were what in those days would be called opera-houses—*e. g.*, at the beginning of each of Terence's plays there was an announcement which said, "The music composed for equal flutes, right and left handed." He might here allude to the brazen or earthenware vases in the ancient theatres. He himself, unfortunately, was not a musician, but when Vitruvius described the notes each vase was to produce, it could not be supposed that they did not answer their purpose. Mr. Faikener, in his *Classical Museum*, translated a Renaissance account of those vases being found in position in a theatre. There were plenty of musicians among architects; and considering the number of persons in England who professed to adore music, the money should easily be raised for trying the experiment. Vitruvius told them that theatres lined with wood did not want vases, while those of stone and marble did. Getting the key-note of a room seemed a very useful thing, while the effect of currents of air on sound was most interesting. The divine who was so severe on architects probably fancied their art was as easy as writing sermons, and quite overlooked the fact that the appearance of churches should in itself excite the proper emotions, and that at present the science of acoustics was so little advanced that any change from an old form might alter the sonorous character of a church. He trusted the reverend gentleman would have the opportunity of testing his theories. The present form of churches was probably perfectly adapted to the Roman ritual; but was absurd for the Protestant ritual; but the remarks of their critic were, no doubt, just, as regarded the building of music-halls and concert-rooms. They might fairly hope that some of the scientific men of the day would devote themselves to the science of acoustics, and give architects a chapter on the application of its laws to buildings.

Mr. William White [F.], F. S. A., said that the subject Mr. Burrows had brought before them was one of great interest to him [the speaker], inasmuch as the subject of harmonic proportion was one he had closely studied, he might say, for the past fifty years. He was quite satisfied from his studies that the chief element of all was the proportion of the building within the walls. There were contradictions, and want of evidence, and things of that kind relating to materials, to heated air, to ventilation, to resonance, and so on. But he was quite sure that the first element was the proportion. In all his own works, which included about seventy churches, he had carried out one invariable system, and he could only claim one failure, and that was due not to the proportions of the building—it was, indeed, very good for sound in other respects—but to the intervention of a lantern in the centre, which swallowed up so much of the sound that it made it difficult to hear when speaking in the neighborhood of the lantern. The sound of the speaker from the east end of the church could be distinctly heard at the west end, but, unfortunately, the pulpit came near the middle, and consequently the building failed in that respect. There appeared to be a general agreement that the proportion of the interior should be according to some harmonic ratio. But then came the question what was that harmonic ratio to be. It ought not to be, he contended, a ratio of numerical or progressive proportions. It ought to be a ratio of absolute geometry, and in that geometry the angles of 30°, 60° and 120° were the angles to be used in proportioning the distance from wall to wall and from ceiling to floor. They were told that the proportions of the buildings mentioned in the paper, of 3, 4 and 5, were excellent for sound. Those proportions agreed almost entirely, but not quite, with the geometrical system of which he spoke. [The speaker here illustrated his argument by the aid of a series of diagrams, and cited various buildings in support of his contention.] Some thirty-five years ago, he discovered almost accidentally that the worst proportion possible for a room was a perfect cube. He could speak from experience there, because he went into two rooms, at Reading, which were exactly 25 feet square and 25 feet high, and they were most intolerable for sound, and, in determining dimensions, he pleaded for the use of the equilateral triangle, which in its proportions had an accurate and absolute relation to the interval of the "Fifth" in music. He would not go into the question of resonance, but he should like to say that when he had spoken of a hard substance for placing an organ upon, or for the floor of a lecture-room, he did not want that hard material carried round the walls and ceiling, but he wanted it chiefly for the assistance of the

speaker. The softer material for the walls would concentrate the sound for the benefit of the listener. He did not quite follow the diagram in the paper, inasmuch as an angle from the speaker was drawn to about a yard on one side of the corner, showing a wavy line going round, and then whether it was dissipated, or what became of it, he did not know. But there was an omission in the diagram. At the same distance from the speaker there would be an angle on the other side of the corner, with the same flowing wave meeting actually in the corner, and dissipating or absorbing each other. As regarded the square angles of ceiling, that must depend much more upon the proportions than upon the fact of its being square, or canted, or hollow. There were two lecture-rooms in the Institute at Stockholm, one over the other. The one was exceedingly good for sound, and that had a flat ceiling; the one over, in which the ceiling was canted off, was deplorably useless for the purpose of speaking. For the musical pitch of the room, it depended very much more upon the breadth and height than upon the length. He believed that the length would be found to affect the tone and the echo much more than the musical note. He arrived at that from a very different illustration—that of the bell. The bell was proportioned, by its diameter, for the note, and the half of the diameter for the octave above it, and so with all the intermediate notes, the height of the bell giving the tone. There could be no doubt from what Mr. Aitchison had said that the acoustic vases were for increasing the resonance, to give a pleasant resonance to the speaker's voice; and as to music, he should not at all wonder if those sounds, not being strictly to a note, sympathized with the key-note of the building, and so would enable a speaker to accommodate his voice very much more quickly and much more truly with the sound of the room.

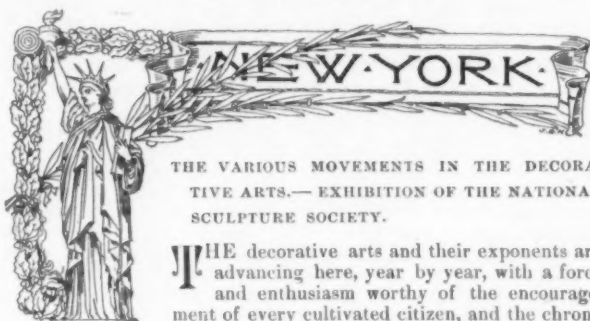
Professor Banister Fletcher [F.] said he thought that a very useful work might be done if they adopted Professor Roger Smith's suggestion, and referred the subject to the Science Committee, with a view to the tabulation of all buildings. It would certainly take some considerable time; but a record of the shapes of various buildings, their sizes and details, including the question of ventilation, would be most useful. He supported very cordially Professor Roger Smith's suggestion.

Mr. R. Langton Cole [A.], referring to the Stock Exchange Buildings, of which his father was the architect, said that for the last ten years, whenever business was particularly good, they had many complaints in reference to its acoustic properties. He thought they ought to add to the three classes which Mr. Burrows had mentioned a fourth, which only occurred in the case of a Stock Exchange, and that was a building in which a larger number of persons wanted to speak and to hear each other at the same time, but to have no echo whatever. What they wanted to get rid of was resonance, and that resonance was much mixed up with echo. He believed the managers of the Stock Exchange would place the building at the disposal of the Science Committee after business hours, in order that they might experiment upon it in any way they pleased. It had been mentioned that the Vienna buildings were generally very successful. It was true that they were very elaborately ventilated by mechanical means, as was also the Stock Exchange. But the Vienna buildings were nearly always ventilated on the downward system of ventilation. The air was brought in at the top and extracted at the bottom by mechanical means. At the Stock Exchange it was done on exactly the opposite system. The air was brought in at the bottom. It might be desirable to reverse that and bring the current downwards, so as to get rid of this echo. He would like to ask Mr. Burrows whether he considered marble a resonant material or not. Some spoke of it as resonant and others as dead. One of the most successful experiments made in stopping the resonance was hanging flags round the eight piers which carried the dome. They were hung in groups, and broke the air up. But objection was made that the flags were not suitable for a place of business, and they had been removed. The marble hall of Gaton, in Surrey, had such an intolerable echo that no concert or performance or entertainment could take place in it. Successful means—principally a large square velarium hung from the four corners—had been adopted by Messrs. Edgington to prevent that echo, and evening entertainments were held there, including musical performances, without any difficulty.

The Honorable Secretary, referring to the construction of the Stock Exchange building, said that the conclusion he had come to from studying Indian domes was that those which were lined with marble, and of which the wall came immediately under the dome in square of plan, with very shallow recess transepts, echoed more than any other buildings in the world. In buildings where the domes were supported on columns, like one of the large domes in Beejapore, which had a series of aisles and transepts of considerable length, there was not nearly the same amount of echo. Domes were generally stated to be bad for sound, and he believed that difficulty was due to the fact that domes were nearly always built over walls which almost enclosed the space covered by the dome, and in consequence, the sound could not get away. At Florence Cathedral there was very little echo, because there was a wide open space in proportion to the space covered by the dome, and the sound could get away. It was not confined, as it was in St. Paul's, or St. Peter's, or in the Indian domes he had mentioned. But the fact of a building like the Stock Exchange being lined with alabaster was one of the chief reasons for the echo.

Mr. H. W. Burrows [A.] responded to the vote, and said that, speaking as a member of the Science Committee, he should be very pleased indeed if they could carry out the suggestion made by Professor Roger Smith and Professor Banister Fletcher, and collect as much information as possible of the form and materials, and construction and ventilation of buildings, with a view, subject to the Council's sanction, of publishing a record in the *Journal* in a tangible form. Unfortunately, the efforts of the Science Committee were not always thoroughly backed, he was going to say, by the Council, or by the members of the Institute. In dealing with another matter which he had originally suggested—the testing of brickwork—they had had considerable difficulty in getting together even £50. None of these things, unfortunately, could be done without some expenditure of money, as well as of time. Of course, the members of the Institute were only too willing, as a rule, to give their time. But money also was wanted to meet incidental expenses, and it was hardly fair to saddle members of the Science Committee with these, in addition to the time they so willingly gave. Reverting to his paper, with regard to the questions and remarks as to different materials, and so on, he thought, as Mr. Statham very well put it, the main point was the use to which the building was to be put. A building which was good for music very often was exceedingly bad for sound, and that was very well borne out indeed by Mr. Langton Cole's remarks on the Stock Exchange. As he had told them, that building had proved unsuccessful in regard to the acoustic properties desired, as could be seen by the efforts made to reform it. They had hung up two velaria, one immediately under the dome, and another in segments between each of the windows lighting the dome. They had also an arrangement of draperies in the spandrels of the arches, and they had tried flags. But all their efforts had been unsuccessful. That building, however, which was so bad for speaking purposes as far as members of the Stock Exchange were concerned, was pronounced, on the occasion of its opening by the Prince of Wales, when a performance was given by the orchestral band of the Stock Exchange, to be exceedingly good. There was the difference at once. When the building was used for speaking in, the reflection came very rapidly off the walls, and an enormous amount of confusion and rapid echoes was the result. If the building were used for music, the rhythmic progression of the songs woke up the echoes with pleasing effect. But when the resonance of the dome was brought into play, the whole thing was spoiled. As had been truly remarked, if they would only strip the marble off the walls, and put wood in its place—hammer-dress all the pillars and take off their polish, build the ceiling at the commencement of the dome and utilize the space above for offices, which would bring in a revenue to more than pay for the removal of the dome—they might possibly get a successful building. But with a dome something like 90 feet high, and a crowd of men speaking underneath it, and reflections coming from every possible direction, it must necessarily be difficult to hear. With only one or two people speaking in a room, hundreds of echoes were awakened at every point. Mr. Emerson, he thought, misunderstood the plan. It was not a continuous wall under the dome. There was plenty of space for the sound to run into. [The Honorable Secretary: But not deep enough.] It was exceedingly deep. The whole building was practically two domes, with an arcade coming off, and, therefore, the sound could run out of the larger dome into the space between the two domes as easily as possible, and there was practically nothing except the beams which supported the domes to obstruct the sound. Therefore, there was plenty of space for the sound to run under, and the reflection was principally from the columns carrying the dome, and the marble surfaces at the rear of those. [The Honorable Secretary, interposing, said these were only 23 feet off.] The space, he believed, from one side of the dome to the second dome was much more than 23 feet. Certainly any one standing in the building would get that idea. That, he thought, would be found to be the case in many buildings. It was not so much that there was no means for the sound to get away, but that even if the sound had the opportunity of getting away, the farther surface still reflected sound, possibly not to the same extent as the nearer surface of the supporting pillars, but still to a certain extent, and so confusion followed. Professor Aitchison had asked what was the nature of the convex cove used at Langham Place. It was simply the reverse of the concave cove. It had been well illustrated in the *Builder*. Mr. William White's contribution was an exceedingly important one. He had shown a very elaborate series of diagrams, confirming from his own practice the value at any rate of an approach to harmonic proportion. Personally, he did not think one need lay too much stress on the exact value of harmonic proportion expressed in so many feet and inches. One could see by reference to several buildings that a few feet, either one way or the other, when they were dealing with very extensive dimensions, like 200 or 300 feet, or even 50 or 60 feet, was of no great importance possibly. But certainly the relation Mr. White had shown between the use of the angle of 60°, both on plan and section, was very striking, and might very well be worked out, as Mr. White had done by comparing the dimensions given from quotations in the paper, and showing distinctly that they fell within his geometrical ratio. Mr. Max Clarke had contributed some views on the subject in MS., which he [Mr. Burrows] hoped would be allowed to appear in the *Journal*. He had given the dimensions of certain halls that were not mentioned in the paper, and he very rightly said that they should have not only the materials of which buildings were

formed, their dimensions, and so on, but they should also have a note giving their acoustic reputation. After all, the acoustic reputation was the main thing. People differed very much as to what a successful building was from the point-of-view of sound. Mr. Statham would say a building was good for sound because it was suitable for the performance of music. But the reverend gentleman quoted looked at it from another point-of-view. But they must have some agreement as to the basis they were to work upon. The only right thing to do, he thought, was to divide the buildings into classes, and then study the laws that would be applicable to each class. If a building was intended particularly for music, one set of conditions obtained; if for speaking, other conditions applied.



THE VARIOUS MOVEMENTS IN THE DECORATIVE ARTS.—EXHIBITION OF THE NATIONAL SCULPTURE SOCIETY.

THE decorative arts and their exponents are advancing here, year by year, with a force and enthusiasm worthy of the encouragement of every cultivated citizen, and the chronicle of actual achievement throughout the country shows already many works of the greatest merit and is full of promise for the future.

The decorative art I have in mind is that covered by the broader sense of the word, as it applies to historical or mural painting as distinguished from easel painting, and to monumental or conventionalized sculpture as distinguished from portrait or realistic work. The harmonious collaboration of architects, sculptors, painters and landscape artists at the World's Fair is an example in point.

The struggle for the recognition of this form of art and the opportunity to embody it has been long and arduous, but the soundest, best trained and most able architects, painters and sculptors have long since recognized their mutual interdependence and, animated by a strong and abiding faith, they finally won the day at Chicago and conclusively proved their point to an appreciative public, opened the eyes of the multitude that was never blind, but only inattentive, and cleared the way for further advances, greater and more permanent opportunities, and more brilliant successes in the future.

In such decorative work, more than in any other field of art, practice and experiment are absolute essentials. No amount of study of what has been done in other lands and by other generations will take the place of one personal experience, although that study is a most essential foundation. St. Gaudens was not satisfied with the proportions of the first Diana on the Madison Square Garden Tower, and made another considerably smaller and modified the modelling. The first was sent to Chicago and on the Agricultural Building, placed not nearly so high and apparently nearer to one, looked, if anything, rather small.

Here in New York the struggle for the recognition of this principle of collaboration first took shape in the formation of the Architectural League, which had its first public exhibition in 1883, and a great deal of the work of concentrating and educating the public interest has been due to its members. It seems to me that, when rightly appealed to, our public is as quickly aroused, as sympathetic, as appreciative of good work, and, on the whole, as sound as it is in any modern and civilized community, bar none.

The Municipal Art Society entered the special field indicated by its name two years ago, and hopes soon to have made its first gift to the city in the decoration of one of the Criminal Court-rooms, Edward Simmons being now at work on the three panels representing "Justice."

The Society of Mural Painters has recently been formed under promising auspices and with a strong membership, and the National Sculpture Society has just held its second and very successful annual exhibition.

It is of this latter I wish most particularly to speak, for it is certainly the most novel and admirably conceived exhibition of sculpture ever held here, and artistically and in public attendance most successful, in spite of the fact that the exhibits were comparatively few, and that many of them had been seen at previous exhibitions. The sculptors have had relatively little to gain at the picture exhibitions, and have not heretofore mustered strength enough to exhibit by themselves; their work, too, is uncommonly difficult to control for exhibition at any stated time, original works when available are costly to move, and reproductions have not always been kept in the past, or kept only in forms unsuitable for exhibition. The exhibition just closed has solved many of these difficulties, and has, I believe, made possible a successful annual sculpture exhibition hereafter.

Its great merit and novelty lay in its initial conception which was to give, as far as might be in inclosed rooms with artificial light, the effect of sculpture in the open air, surrounded by greenery and

flowers and with architectural adjuncts to further heighten the impression.

Mr. Hastings and Mr. Nathan C. Barrett were respectively the architect and landscape artist, chosen to plan and execute this scheme, and the success of their efforts cannot be too highly praised. The effect upon the public in stimulating their interest, in opening to them new points of view and in charming them with the effectiveness of very simple combinations of Art and Nature can hardly be exaggerated, and will surely ensure to the lasting advantage of our sculptural art.

Word-pictures of striking and picturesque effects are difficult to draw, the eye takes them in at a glance and then returns to them again and again, taking in each time some new detail in the harmonious ensemble. I must, nevertheless, try to give some idea of the means used in carrying out the general scheme.

One enters the galleries of the Fine-Arts Building, where the exhibition was held, through a vaulted passage, which opens on the long side of the first gallery, and the exhibition began with portrait busts in niches on either side of this entrance. Opposite, as one stood at the entrance to the gallery, was a balustrade to a broad platform about three feet above the floor of the first and on a level with the floor of the next gallery. This platform was approached by curved steps at either end, with curved rails, heavy balusters and posts, ornamented with flower-pots and sculpture, while between these curving arms was arranged a beautiful bit of geometrical *parterre* with bright flowers and greens, and a fountain: the whole, like a bit of an old Italian garden, with yet a distinctly good and modern flavor. The ends of this first gallery were masked, with clumps of evergreens dividing off smaller spaces, and through the branches one caught suggestive glimpses of statues, and flowers, and people.

Through the doorway at the back of the platform, one could see through the next two galleries, 150 feet or more, and distinguish rows of tree-ferns forming an alley, with sculpture glancing out here and there, flecked with the shadows of the ferns, and as a central feature of the background, a peristyle with sculptured frieze with, back of that again, a mass of evergreen forming a large flat niche, another fountain and effective group of sculpture, half seen, and stimulating one to push on and examine it all more closely.

The second room was, very wisely, left almost unadorned except by the exhibits: it is a small room, about square, with other small rooms opening from it, right and left.

A few steps more and we enter the large Vanderbilt Gallery with the rows of tall tree-ferns looking like palmettos, on either side, and find that back of them exedras have been managed with columns and entablatures above a curtain wall and crowned with effective terra-cotta pots; and through between the columns one gets still new glimpses of statues or busts partly hidden, and green trees and plants throwing deep shadows in parts and bringing out effectively the exhibits and the visitors.

This summary description will, I hope, convey a general idea of the arrangement: the effect of space, of color and of light and shade cannot be adequately described; they were wonderfully well managed and showed consummate skill: great effects with simple means. I understand that most of the work of arranging was done in three days in the galleries, and that for the architectural features, models made for execution in terra-cotta were largely utilized.

The sculpture itself I have hardly left myself space to speak of in detail. There were a great many very good things, although many of the sculptors were evidently unable to put their more recent work into shape to exhibit. Another year, after the success of this year's exhibition, no doubt a much better exhibition and more representative of what is actually being done in the studios will be achieved. As it was, the standard of excellence and interest was gratifyingly high, and such sculptors as Herbert Adams, Karl Bitter, Theodore Bauer, Paulding Farnham, Daniel C. French, J. S. Hartley, Mac-Monnies, Philip Martini, C. H. Niehaus, Miss Bessie Potter, J. Massey Rhind, F. W. Ruckstuhl, J. Q. A. Ward, Olin Warner and half a score of others were notably represented; altogether there were about seventy exhibitors and 216 numbers on the catalogue. St. Gaudens did not exhibit, except his designs for the Columbian Medal, exhibited together with the changes made, and Mr. Charles E. Barber's design for the same. The competition for a new design for a silver dollar, with twenty-four competitors, was disappointing. None of the designs show any material advance over the poor thing we have now in use. After looking over the excellent small collection of old medals and coins exhibited by the American Numismatic Society, one realizes clearly, by comparison, that this is one of the most elusive forms of decorative art, and that practice and opportunity are what are most needed to develop the latent talent; that, therefore, the competition is in so far a success, though unsuccessful.

ESTOMBED IN AN INGOT.—One of the strangest coffins ever told of is that for which the British War Department is said to be responsible. The story is that a workman engaged in casting metal for the manufacture of ordnance at the Woolwich Arsenal lost his balance and fell into a caldron containing twelve tons of molten steel. The metal was at white heat, and the man was utterly consumed in less time than it takes to tell of it. The War Department authorities held a conference and decided not to profane the dead by using the metal in the manufacture of ordnance, and that mass of metal was actually buried and a Church of England clergyman read the services for the dead over it.—*Philadelphia Telegraph.*



[Contributors of drawings are requested to send also plans and a full and adequate description, of the buildings, including a statement of cost.]

COMPETITIVE DESIGN FOR THE PUBLIC LIBRARY, PROVIDENCE, R. I. MESSRS. CLARKE & SPAULDING, ARCHITECTS, PROVIDENCE, R. I.

[Issued with the International and Imperial Editions only.]

THIS design is, both in proportion and detail, Classic in character with the feeling of the French Renaissance. The materials for the external walls are limestone, light terra-cotta and a dark mottled yellow brick. For the interior treatment the plan calls for marble columns and pilasters in the main hall, a high marble wainscot and marble stairs and balustrade in the dome, cornice, beams and the walls above the wainscot being of plaster. The second-story hall is to be finished entirely in plaster. The estimated cost after this design is \$115,548. Elaborate and complete arrangements are made for heating and ventilation, plumbing and lighting.

COMPETITIVE DESIGN FOR THE PUBLIC LIBRARY, PROVIDENCE, R. I. MR. G. G. CONGDON [WILCOX & CONGDON], ARCHITECT, PROVIDENCE, R. I.

[Issued with the International and Imperial Editions only.]

This building was designed in the style of the Italian Renaissance and was to be constructed of pink granite, Lee marble, terra-cotta and standard buff brick. The pink granite is used in the rustic work for the underpinning, with a belt-course of marble crowning the keystones of the basement windows. The portico on Greene Street façade is made a prominent feature by projecting the second-story walls from the main building and supporting them on entablature and columns of marble. The plan for the interior is for floors and asphalt roof supported by steel beams and terra-cotta arches. Mosaic tile was planned for the lavatories and portico. The estimated cost of the building with complete equipments is \$120,500.

COMPETITIVE DESIGN FOR THE PUBLIC LIBRARY, PROVIDENCE, R. I. MESSRS. HOPPIN, REED & HOPPIN, ARCHITECTS, PROVIDENCE, R. I.

[Issued with the International and Imperial Editions only.]

This design is for granite basement with brick, united with terra-cotta, for the other parts, all to be white in color. The first-story porch, which is one of the features of this plan, is accented by a considerable projection, and the second-story hall, which is narrower than the first, is indicated by a continuation of the central porch feature. In this, as in all the other plans, arrangements have been made for lighting, heating, ventilation and plumbing in a scientific and complete manner.

THE NEW LIBRARY BUILDING FOR MCGILL UNIVERSITY, MONTREAL, CAN. MR. ANDREW T. TAYLOR, F. R. I. B. A., R. C. A. [MESSRS. TAYLOR & GORDON], ARCHITECT, MONTREAL, P. Q.

This building, recently completed, supplied a felt want. It is entirely the gift of the late Peter Redpath, Esq., who also gave a large number of the books. The building is planned on the "stack" system with a stack-room four stories high and capable of extension to twice its present area. The large reading-room is 110 feet long, 43 feet wide and 44 feet high to top of inner roof, which is an open-timber one, having the hammer-beams ornamented by grotesque heads. At the angles of the reading-room are lofty oriel-windows and in the centre a large "inglenook" fireplace with elaborately-carved mantel. At one end is a gallery for visitors and cases of rare books. There is also a special muniment vault. A number of other rooms are arranged for periodicals, cataloguing, professor's reading-room, semi-nary rooms, large room for architecture, sculpture, etc. The fittings are all of oak and the electric-light is used throughout. There are a number of painted glass windows representing Art, Music, Literature, etc., with authentic portraits of the leading men in each department; and in the other windows suitable quotations and inscriptions are painted. Externally the building is of Montreal limestone, with slate and copper roofs.

FIRST CHURCH OF CHRIST, SCIENTIST, BOSTON, MASS. MR. F. I. WELCH, ARCHITECT, BOSTON, MASS.

MISSION CHURCH, SOUTH LEE, MASS. MESSRS. STURGIS & CABOT, ARCHITECTS, BOSTON, MASS.

PAINTINGS BY MM. CHAVANNES, ROLL AND LHERMITTE AT THE SALON DU CHAMP DE MARS, PARIS.

THESE plates copied from *L'Illustration* are referred to in the Paris Letter elsewhere in this issue.

PROPOSED TREATMENT OF FIGURES TO BE PLACED ON THE AMERICAN SURETY COMPANY'S BUILDING, CORNER BROADWAY AND PINE STREET, NEW YORK CITY. MR. J. MASSEY RHIND, SCULPTOR.

[By an oversight the following description was omitted from our last week's issue:

While composing this scheme of figures, I have constantly kept in mind the idea with which I first started; that is, applying the symbols which suggest the titles of the figures in such a manner as to represent the industrial and other branches in which the corporation occupying the building is engaged. I have thus endeavored to modernize the symbols; while in the treatment of the whole, I have striven to keep it severely Classical, simple and strong. I have, also, tried, as far as possible, and where the subject would permit, to compose them as though they were a part of the building, rather than as a decoration or addition; in this way keeping the figures, in pose and drapery, in accord with the architectural lines of the building proper.

The symbols used in connection with these figures are so arranged as to show rather the types of "progress" than could be shown if the old, conventional types were adhered to. Of course, they can be changed, if desired, in working out the "full size" figures. In fact, the whole scheme is in the nature of a suggestion, more than anything else, although the arrangement as it stands embodies my ideas of a well-balanced composition.

Reading from left to right, "Fidelity" is first; "Science," second; "Manufacture," third; "Agriculture," fourth; "Art," fifth; "Fortitude," or "Surety," sixth. It will be seen by this arrangement of figures that I have carried out my idea of making the figure "Fidelity," or "Honesty," on the left, and the figure "Fortitude," or "Surety," on the extreme right, serve as a guard, or "bond," for the others; suggesting more strongly the nature of the American Surety Company's business.

"Fidelity," sister to "Justice," Goddess of Honesty, is represented erect in carriage, the pose indicating "honesty" and "candor," the two hands clasped together in front suggesting "faith" given and received.

"Science" is represented holding in her right hand a small stand, from the top of which an electric-light is shown with its radiations. A wire passes in front of the body to the left hand, which hangs by the side, and which holds a small "coil battery," with which the wire is connected. The idea conveyed in this figure is the embodiment of the sciences, feeling that Electricity is the greatest of all, both as a means of progress, and consequently, a benefactor to man.

"Manufacture" is represented holding in her right hand the "governing balls." I have concluded that this is the most comprehensive symbol of manufacturing industry, and one which covers more generally all the branches which are included under that head. The left arm and hand of the figure is extended along the side of the body.

"Agriculture" is represented with a "reaping hook" in the right hand, which rests at full length along the side of the body, the blade of the "hook" pressing against the drapery. [See large model.] In the left hand, and running up above the shoulder, is carried a stalk of "Indian-corn." While the variety of "corn" may not be strictly Classical, it is intended to make the application of agricultural resources more in accord with modern times. I have, therefore, used the "Indian-corn" in preference to the conventional "wheat sheaf." The general composition of this figure is intended to represent "Felicity," the Goddess of Prosperity, and "Peace."

"Art" is represented holding in her right hand a mallet, suggesting the "working stage of sculpture." In the left hand she holds a small "finished figure," not necessarily as applied to sculpture, but to all the arts.

"Surety," the Goddess of Fortitude, is represented with stern, determined air, the two hands clasped in front over the hilt of a sword, which rests on the left arm, and extends up to and above the shoulder.]

[Additional Illustrations in the International Edition.]

DETAILS FROM THE CHÂTEAU DE BOUCHE D'AIGRE, LOIR-ET-CHER, FRANCE.

[Copper-plate Photogravure.]

THE WILLMANN'S HOUSE IN THE KRAHNSTRASSE, OSNABRÜCK, PRUSSIA.

This plate is copied from *Zeitschrift für Bauwesen*.

KING'S HEAD HOTEL, HARROW-ON-THE-HILL, ENGL. MR. J. T. SMITH, ARCHITECT.

This plate is copied from *Building News*.

COMPETITIVE DESIGN FOR A CHURCH AT MAGDEBURG, PRUSSIA. HERREN PÜTZER & EVERSHIM, ARCHITECTS.

This plate is copied from *Architektonische Rundschau*.

COMPETITIVE DESIGN FOR A BANK AT HALIFAX, ENGL. MR. HERBERT ATHRON, ARCHITECT.

This plate is copied from *The Builder*.

SMOKING-ROOM: JUNIOR CONSTITUTIONAL CLUB, PICCADILLY, LONDON, ENGL. MR. R. W. EDIS, ARCHITECT.

READING-ROOM OF THE SAME.

DINING-ROOM OF THE SAME.



[The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.]

BOSTON BETWEEN 1630 AND 1720.

BOSTON, MASS., May 20, 1895.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—The impression that "Boston has a larger proportion of its entire area devoted to streets than any other large city in the United States," is not entirely justified, I think. The census (*Bulletin 100*) gives the percentage of street area to city area at 8.76 for Boston, 8.42 for Philadelphia, 15.94 for Chicago, 16.25 for New York, and 32.72 for Brooklyn.

The average width of streets is reported for Boston at 40', Philadelphia 50', New York 60', Chicago 66', Brooklyn 70'.

The average width of sidewalks is reported for Boston at 7', Philadelphia 13', New York 15', Chicago 17', Brooklyn 18'.

Of course, the census is not infallible; but it can be upset by better evidence only. The census proves that in the future, as in the past, Boston must expend many millions for widening streets. It is true, also, that Boston has not done right by sidewalks. They should be wider, and the city is by law required to keep them properly cleaned. This latter duty the city neglects almost entirely.

May a layman express the belief that the architecture and engineering of Boston from 1630 to 1720 are underrated. There is no evidence to show that a log cabin was ever built in the Town of Boston. There is strong evidence to show that the early buildings were half-timber structures (covered with cedar shingles) some of them clapboarded, and few without ornament. The first church was sold in 1639 for £300 sterling. Prices in those times were about one-fifth of what they are now. The land on which the first church stood was a small lot, and is well indicated by the Brazer building (62' x 65'). Boston began in 1630; how greatly the founders were interested in secular matters appears from the fact that the first church was not begun until two years later. Beside their excellent lumber, which made them rich, the founders used stone and American-made brick. They imported glass in abundance, and had a glass factory in Salem. They manufactured iron, improved the water-wheel, invented a mowing-machine, used diving-bells, and made the best leather. That age of opulence ceased about 1720, when the decline set in. We had a dry-dock and a wet-dock long before they had such things in England. Boston began as a commercial centre, which dealt in beaver, lumber (the best in the world), leather, fish, and the best ships afloat, built in Boston under public inspectors, then freighted to the West Indies, thence to Europe, where either the vessel was sold, or took a cargo of wine, oil, textiles and luxuries for Boston consumption. By 1640, Boston had a Latin School, a university, a printing-press, a post-office and all the resources of a commercial centre.

A young student of architecture, who wishes to make his mark, should gather from written documents and actual monuments the truths of early building and engineering in Boston. The records of the Town and Colony are open; so are the documents at the Probate and Registry of Deeds offices; so are the letters and diaries of the founders. The mine offers riches to a layman: a professional student might look long for a nobler theme.

About 1720, practically every street in Boston was paved. At any rate, the proportion of paved streets was far greater than it is to-day.

I have just read a letter of 1650, Emanuel Downing telling Winthrop about a man in Boston "erecting a saw-mill at a place near Pascattaway (Portsmouth, N. H.), that shall work with nere twenty sawes at once."

The golden age of Boston was from 1630 to 1720, and it is not likely that architecture alone was neglected. The joy of the age was the joy of success, the joy that men feel who deal with great questions and find that they can solve them. The readiness with which the founders of Boston adapted themselves to their new world has never been surpassed. Before Winthrop died, the fame of Boston was world-wide. Faithfully yours, C. W. ERNST.

SIZE OF BRICKS.

RENO, NEV., May 15, 1895.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—The Board of School Trustees here, in advertising for bids on a brick school-house about to be erected, called for American standard-size brick, 2" x 4" x 8". Please inform me either through your journal, or otherwise, if there is such a thing as an American standard size recognized in the brick business and if the above stated size is correct.

Yours truly, F. M. S.

[ROUGHLY speaking, the dimensions are correct enough, though we believe it will be hard to find bricks which correspond exactly with them. Eastern bricks are smaller than those used in the West, and face-bricks are larger than common bricks. Lengths vary from 7 1/2" to 8 3/4"; widths from 3 3/8" to 4 1/4", and thickness from 2 1/4" to 2 3/4".—EDS. AMERICAN ARCHITECT.]

WHAT CEMENT TO USE WITH LIMESTONE.

BOSTON, MASS., May 20, 1895.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Can you give me information or direct me where to look for a method of using limestone above concrete, or in cement, so as to avoid discoloration in the stone.

An early answer will oblige

Yours very truly,

SUBSCRIBER.

[It is generally believed that the only cements that can safely be used with limestone are Lafarge and Vicat. A concern in Sandusky, Ohio, promised to make a white cement which was expected to have similar qualities.—EDS. AMERICAN ARCHITECT.]



BOSTON, MASS.—Pictures loaned by Quincy A. Shaw; Gobelin Tapestries; Japanese Paintings; Color Prints by Arthur W. Dow; Line Engravings, Mezzotints, and Etchings by Rembrandt: at the Museum of Fine Arts.

CHICAGO, ILL.—Eighth Annual Spring Exhibition of Works of Architecture and the Allied Arts: at the Art Institute, opened May 23.

DETROIT, MICH.—Exhibition, by the Art Club, of Paintings, also Works of Architecture and the Allied Arts: at the Light Infantry Armory, May 18 to June 1.

INDIANAPOLIS, IND.—Twelfth Annual Exhibition of the Art Association: May 10 to June 4.

NEW YORK, N. Y.—Twenty-eighth Semi-annual Exhibition: at the Metropolitan Museum of Art.

East Side Art Exhibition: at the Hebrew Institute, East Broadway and Jefferson St., opened May 8.



THE TYRANNY OF ARCHITECTURAL TRADITION.—It will be fresh in the memory of all those of us who feel an interest in the fine-arts, how, shortly before Christmas last, the Winchester barracks were burned down. The disaster was a national one, for the building was an important and beautiful specimen of architecture, erected originally, with singular felicity as to the choice of site, for a Royal palace. Sir Christopher Wren had been the designer of this palace, and we need here say no more about it than that it was worthy of his majestic genius. The news of this catastrophe was, of course, duly given in our papers; but a certain leading Radical paper not only gave the news, but an editorial comment upon it. We are quoting this comment in full without making any elaborate excuse for doing so; for it is a most instructive exhibition of a certain aspect of the modern Radical spirit, and not a sentence from it could be spared. Here, then, is our contemporary's frank and elegant confession: "Arson is hateful to us as a rule, but we are not inclined to inquire too closely into the cause of the barrack fire at Winchester. There is one circumstance about the fire which makes us regard it, in any event, with supreme satisfaction. The building was designed by Sir Christopher Wren. As free-born Britons, we protest against the tyranny of this architectural tradition. Not a useless, empty City church is threatened, but we are faced with the protest that it is the work of Sir Christopher Wren. Not an improvement can be mooted within the city boundaries without imploring voices reaching us to stay our sacrilegious hands because of some wretched bit of old stonework which is attributed to Sir Christopher Wren. We have no personal feeling in the matter; but when a reputation is thrown at our heads with unflinching persistence on every possible occasion, it becomes positively maddening; and whatever the effect on the army estimates may be, we to-day express our cordial and unfeigned delight that the Winchester barracks have been burned." Now, if these memorable utterances had occurred in the letter of a casual correspondent, one might simply have read them with a smile, as at the nonsense of some ill-educated and bilious fellow with an itch for cutting capers in print, and so have dismissed them. But an editorial utterance commands more attention, though not necessarily more re-

spect; however silly or contemptible, it has a certain significance; and the Radical print in question, lauded to the skies as it is by current Radicals for its advanced views and its fearlessness, may be taken to have known pretty well the temper of its supporters in such an affair as this Winchester barracks business, and to have set them a tune over the thing which it was sure they would dance to readily. We rescue the "note," therefore, for a moment from the oblivion which is its proper fate, and ask our readers to ponder it as the expression of the sentiment of a certain body of their countrymen who commend themselves to us as our emancipators and guides. And what is it that is at bottom of this Radical jubilation, this pean of the "free-born Briton" over the spectacle of a majestic work of art swept off the face of the earth? Nothing in the world but this—a sheer hatred of authority. Let us pass over the contemptuous and unwarranted illusion to the city churches. About the Winchester barracks, there is even no pretence that they were an obstruction, or that they were unfitted for their purpose. They were built by Sir Christopher Wren: there is the beginning and there is the end of their offence. Sir Christopher Wren is an acknowledged master in the arts, a master of the first order; and our "free-born Briton," that species of him which is "up to date," cannot stomach a master; his blood boils at the mere suggestion of superiority, of service, of humility, of reverence. Full grown and fully accoutred, as Athene from the head of Zeus, he leaps out on us; and, *prestissimo!* the elders and their traditions are scattered before him as chaff.—Saturday Review.

WOODEN HOUSES FOR ROYALTY.—Wooden houses are becoming quite the fashion among the royal personages of Europe, and the Prince of Wales is taking an active interest in an Anglo-Norwegian company that has been formed to bring into fashion in England wooden houses of the same kind that are so popular in Norway, where there are in existence churches, public buildings and houses made of wood that are in some cases over 500 years of age. The Prince of Wales is having a number of picturesque wooden lodges and houses erected on his estate at Sandringham. The summer residence of King Leopold of Belgium, at Ostend, is constructed entirely of wood; and so, too, are the shooting-lodges, or rather châteaux of Emperor William, at Hubertusstock; of Emperor Francis Joseph at Murzesteg; of Czar Nicholas, at Spala and at Bielovitz and of Queen Marguerite and King Humbert of Italy, in the Alpine regions of Piedmont, where they are accustomed to pass several weeks every summer. The greater part of Mar Lodge, where the Duke of Fife and his royal wife, the eldest daughter of the Prince of Wales, are accustomed to entertain so largely every autumn during the deer-stalking season, is built entirely of wood; and the kings of Saxony, Wurtemberg, Denmark, and, of course, of Sweden, have each, not one, but a number of roomy and picturesque forest and mountain hunting-châteaux constructed of undressed wood. The advantage about such houses is that they can be easily transported from one place to another, and can be quickly put together, much in the same way as a Chinese puzzle. Accustomed as one is to find them here in America, they have, until now, been quite the exception in Europe, save in Scandinavia, and it is only at present that they are coming into fashion, thanks to the example of Royalty.—Manufacturers' Gazette.

STRENGTH OF AN OLD WAREHOUSE.—In demolishing a part of the Albert Warehouses, in Liverpool, belonging to the Mersey Docks and Harbor Board, it occurred to the assistant-engineer in charge of the work to make some investigations into the strength of the old brickwork. The wall was built about fifty years ago of hand-made bricks, laid in ground mortar made with Flintshire lime. This lime is in a high degree hydraulic, and has a reputation for making mortar of exceptionally good quality. The Journal of the Royal Institute of British Architects, which describes the investigation, states that the engineer conceived the happy thought of leaving a piece of it in the form of a horizontal beam, having a twelve-foot span and measuring about two feet square in section, seven courses in the height of a two-foot wall. The ends of the beams were not cut free from the rest of the work. This beam was then loaded with all the weight that could be conveniently piled upon it, without appreciable deflection or other sign of weakness resulting. Two courses were then cut off and the whole weight again put on, but without other result. The beam was further reduced by a course, leaving it four courses, or fourteen inches deep, and the ends were also cut free from the other work—the mortar beds of the twelve-inch bearings being left untouched. A centrally-placed load of five tons fifteen hundredweight was then gradually piled upon it, and was borne for several days without apparent effect upon the brickwork. Finally, the weight was increased to six tons nine hundredweight twenty-three pounds, which was sustained for thirty hours, when the beam collapsed during the night and came down in pieces, more like broken timber than anything else. Other tests were made with similarly astonishing results, but the above are sufficient to show what really first-rate brickwork in hydraulic lime will stand.

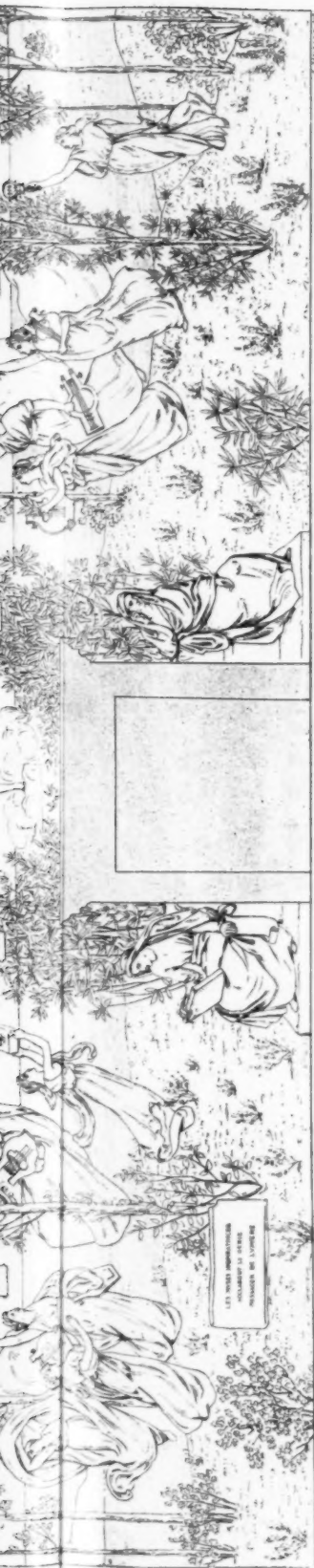
THE CATHEDRAL, AVIGNON.—I expected great things from a church whence seven Popes in succession sent forth blessings and excommunications to have effect throughout the whole of the Catholic world. If not a rival of St. Peter's of Rome, it ought, I fancied, to come a good second to it in magnificence and general impressiveness. What an illusion, to be sure! Its façade is barely striking, and its interior is dark and gloomy as a tomb. There were names scrawled about its exterior walls, on the statuary, and elsewhere; and for a moment or two, ere pushing its portal, I tarried in shelter with two little schoolboys in blue smock frocks, who hummed a profane air—here, in one of the spots of the most august memories in Christendom. Workmen were hammering and singing up above on the tower, which bears a mammoth figure of the Virgin for a finial, in the teeth of the wind and the rain. And the Calvary, in front of the porch, dripped water from all its angles most dismally.—All the Year Round.

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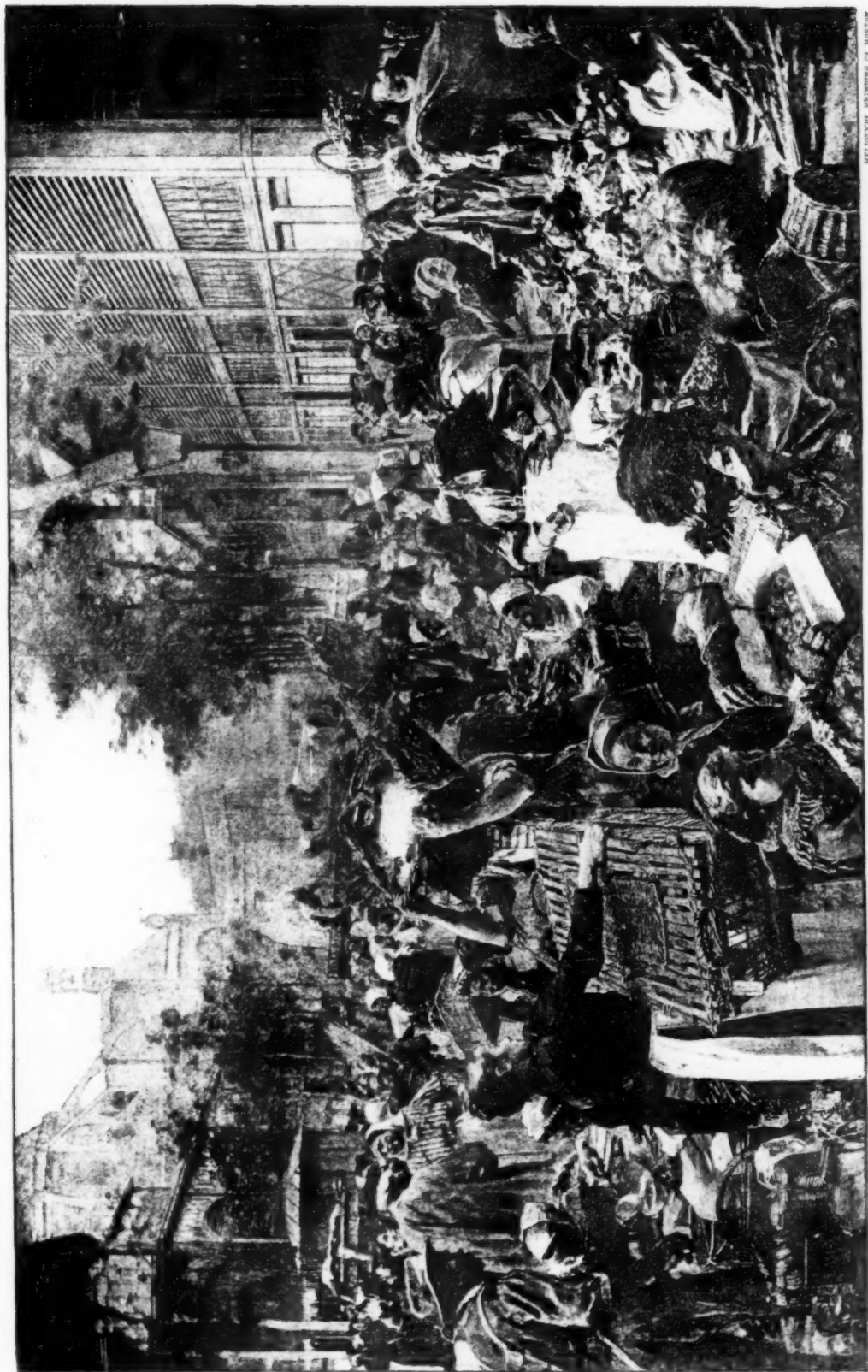


ROLL. — Jotes de la vie.





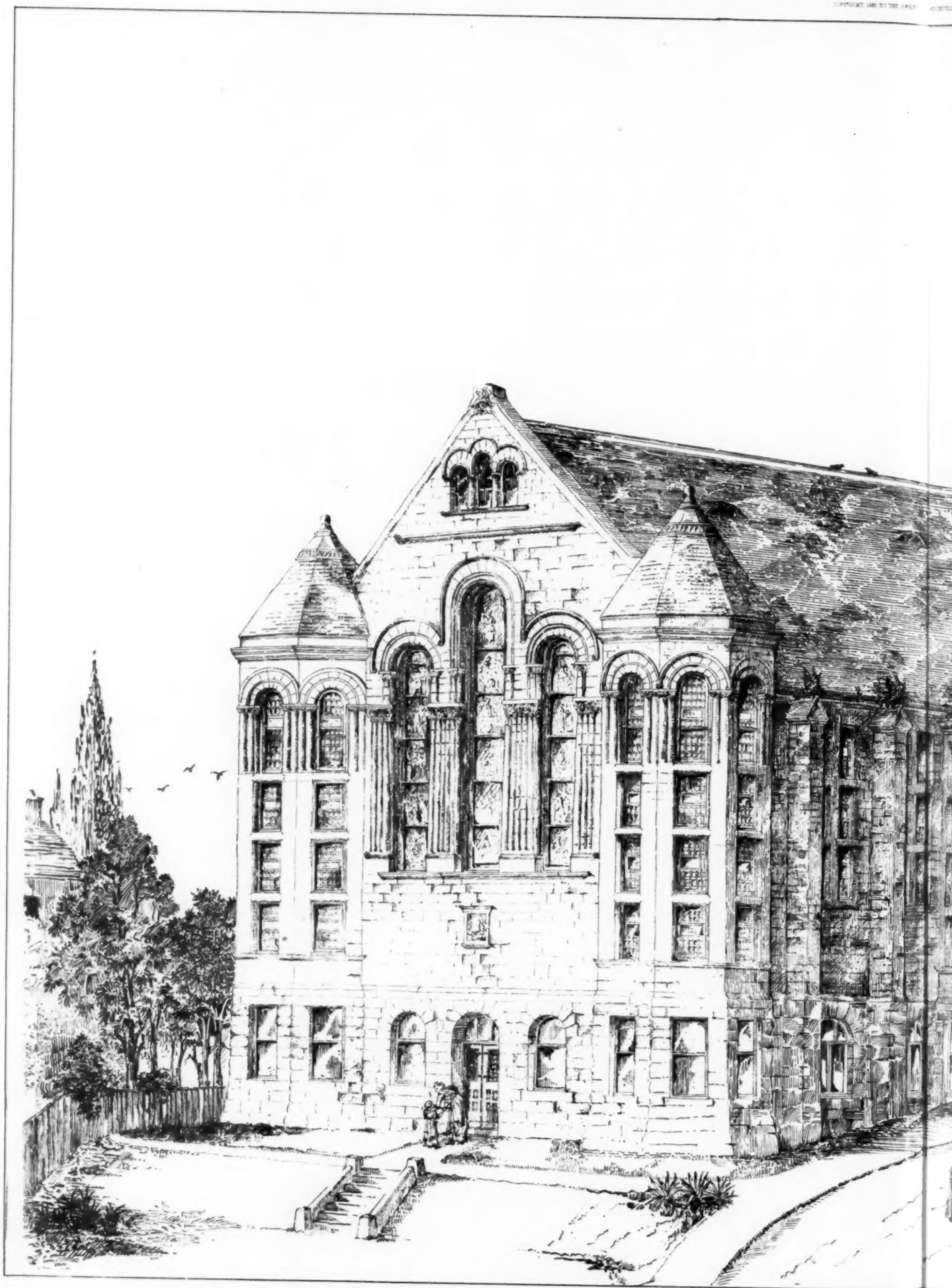
PUVION DE CHAVANNES. — Les Muses inspiratrices accueillent le Geste messager de lumière. (Panneau destiné à l'escalier de la Bibliothèque de Boston.)



HELMUTH FRIEDRICH CO. BOSTON

L. LHERMITTE. — Les Halles. Peinture destinée à la décoration de l'escalier de l'École Vile de Paris.

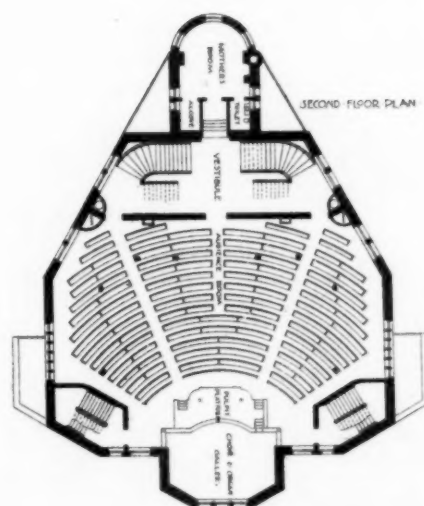
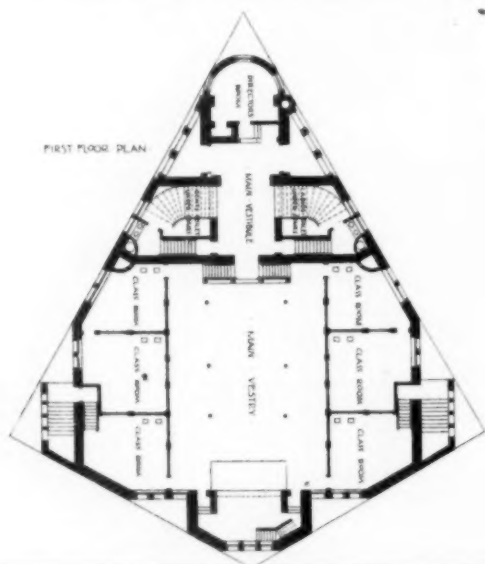
from L'illustration





THE REDPATH LIBRARY.
M'GILL COLLEGE.
MONTREAL.
Andrew T. Taylor, F.R.S.A. [Taylor and Gordon]
Architect, Montreal.

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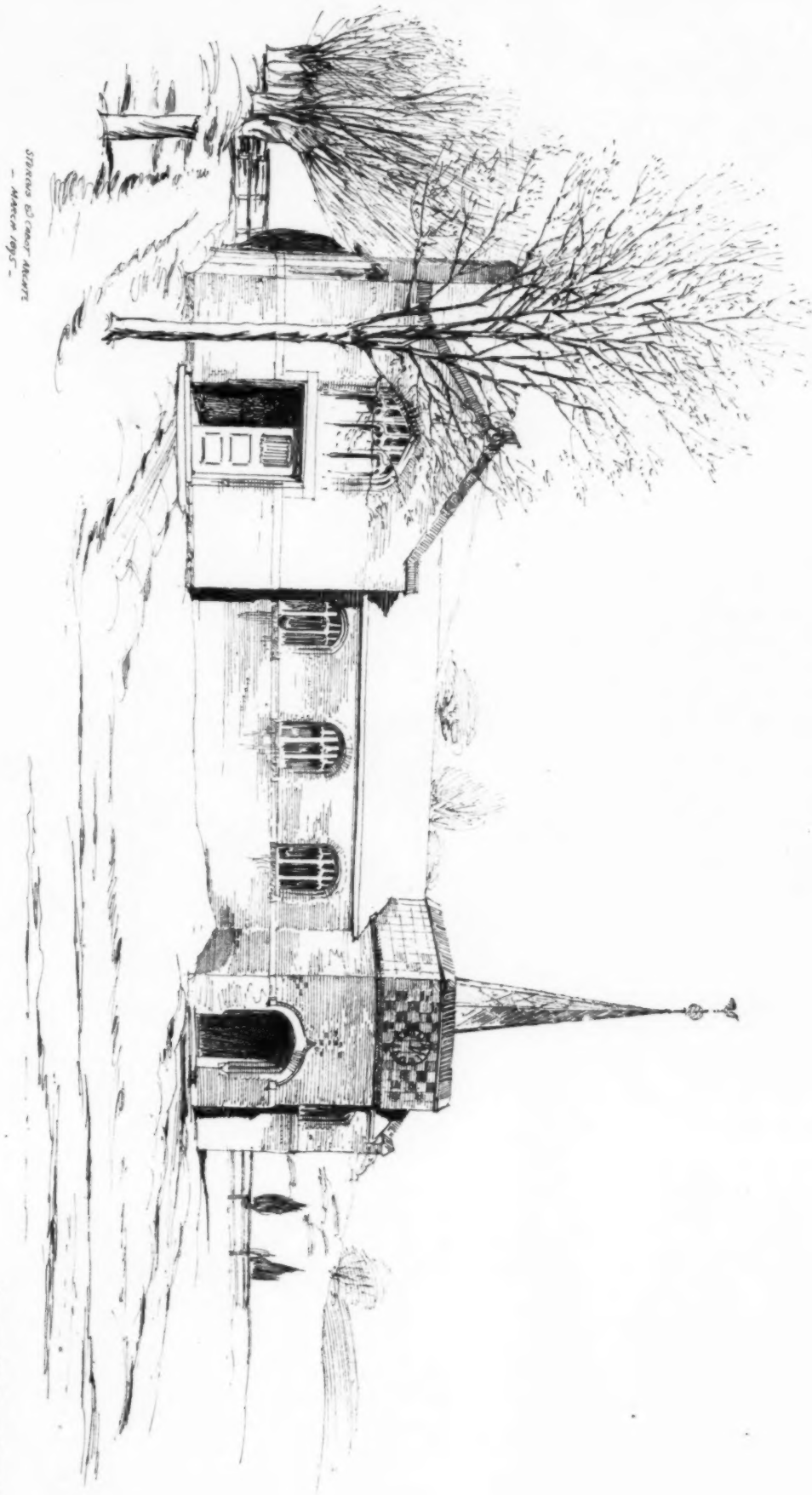


HELDTYPE PRINTING CO. BOSTON

THE FIRST CHURCH OF CHRIST, SCIENTIST, BOSTON, MASS.

FRANKLIN I. WELCH, Architect

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STAINED GLASS BY ALBERT
— MARCH 1895 —

MISSION CHURCH AT SOUTH LEE, MASS.
— THE FINEST ARTIST'S CONCEPTION —

RELIQUARY, PRINCE OF BISHOP