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will be held during the month of November. Intending competitors should file their applications with the editors without delay.

THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XXXIV.

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OCTOBER 24, 1891.



SUMMARY.

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THE city government of Chicago, where the fashion of extremely lofty buildings has, perhaps, reached its most advanced development, is considering the question of limiting the height of buildings for the future by ordinance, and, in anticipation of such a regulation, it is said that an unusual number of applications for permits for many-storied structures have been filed. It will be remembered that the Chicago Odd Fellows recently voted to proceed at once with the erection of a building to be thirty-four stories in height, and architects will probably think that the movement for placing restrictions on that sort of construction has come none too soon. There will be a question, however, whether an ordinance of the kind proposed can be enforced. New York passed, several years ago, a law limiting the height of apartment-houses, but the enforcement of the law was resisted in the courts, and we believe that it was declared unconstitutional and void, and that the Building Bureau was compelled to approve plans in which it was violated, but which were otherwise unobjectionable. In Massachusetts, last winter, a law was enacted limiting the height of all buildings to one hundred and twenty-five feet, and, so far as we know, the question of the validity of the law has not yet been tested. In Chicago, where high buildings are much more common than in Boston, any restrictive regulation would probably be at once carried into court; and, if the New York precedent should be confirmed, there would be, practically, no further attempt anywhere in this country to prevent land-owners from building as far into the sky as they chose.

MR. CUYPERS, of Amsterdam, the distinguished architect of many of the finest buildings in Holland, contributed an interesting paper to the recent Congress of Hygiene, at London, on pile foundations. As these are universally employed in Amsterdam, as well as in most other towns in Holland, the Dutch architects may be regarded as good authority on matters relating to them. It is hardly necessary to inform architects in any country that pile foundations must be constantly moist, or they will rot; but the exact degree of saturation is not settled here. Our architects usually suppose that if the piles are submerged once a day, by the rise of the tide, they are safe, and this is probably true; but Mr. Cuypers says that where the tide is depended upon to keep the piles wet, a succession of unusually low tides, such as often occurs in the autumn, will sometimes leave the top of a pile foundation exposed to the air long enough for rot to commence, and the destruction of the upper portion is then assured. The only

remedy in such cases is to saw off the top of the piles at a lower level, and underpin with masonry. Many old buildings in Holland, Mr. Cuypers says, have perished from this cause; and our architects would do well to make sure that all wood in their foundations is placed so low that it can never, by any possibility, become dry.

OUR common method of completing pile foundations, by "capping" the piles with flat stones, and building up on these stones, is, M. Cuypers informs us, obsolete in Holland, where a "gridiron" of timber is now usually bolted to the piles, and serves as the general footing for the building. Although this system is not unknown here, it is not often used, and the reason why it is preferred in Amsterdam and Rotterdam may be that the marshy soil affords no firm stratum for the foot of the piles to rest on, and connecting them together by the timber gridiron helps to prevent the unequal settlements which would be likely to occur through the varied distribution of the weights upon the footings. It is needless to say that the gridiron, if used, must be subjected to the same conditions of saturation as the piles. A local curiosity of construction, which M. Cuypers describes, is a floating cellar, which is quite commonly constructed under the houses built in the Dutch marsh land. Supposing a house to be constructed without interior piers, which is, of course, the most usual case in the cities, the piles supporting the exterior and party walls form a sort of underground palisade, enclosing a little lake of mud. In this lake is formed a box, made with bottom and sides of heavy timbers, and planked inside, and this box is then lined with waterproof masonry of brickwork and cement. The weight of the brick lining causes the box to sink to a certain depth in the mud, and it is then only necessary to make sure that the sides are high enough to prevent the mud from running over the top of them. A liberal space is left between the top of the cellar-box and the under side of the first floor, so that, in case of unusually high tides, the cellar may not float high enough to lift the house off its foundations; but this space may be enclosed by some construction which will not interfere with the movement of the box, and the cellars formed in this way, although exposed to many tons of water-pressure on the bottom and sides, are said to be perfectly tight, dry, and convenient.

PROFESSOR MELANI writes to *La Construction Moderne* an interesting account of the laying-out of the Piazza del Duomo, at Milan, and the building of the Galleria Vittorio Emanuele, or, as we should call it, the Victor Emmanuel Arcade. It seems that the idea of clearing away the houses which had clustered about the cathedral, so as to give a better view of the building, was agitated at the beginning of the present century, and was adopted by Napoleon, who, however, only accomplished the construction of the new façade of the structure, without being able to carry out his intention of improving the territory around it. Thirty years elapsed before the matter was brought up again. In 1839, some projects were discussed, without result, and new projects were presented and talked over, at intervals, until 1859. In this year, the new kingdom of Italy had been securely established, and, in the general joy, the people of Milan thought it fitting to celebrate the occasion by a renewed effort to carry out their long-delayed plan. In December of that year, the king authorized by decree the establishment by the city of a lottery, for raising money to clear and ornament a square in front of the cathedral. Meanwhile, the municipality had plans prepared, at a small scale, of the cathedral and the surrounding territory, and distributed copies to the citizens, inviting suggestions and criticism. In answer to this appeal, one hundred and seventy-six plans were presented. A jury was appointed to consider them, and they were publicly exhibited. In 1861, the jury made its report. It recommended, as a result of its study of the plan, that the proposed square should be rectangular, and surrounded by buildings with porticos, and advised, also, the construction of a covered street, leading from the Piazza della Scala to the new square, with shops on both sides. This feature seems to have been represented in at least one of the plans offered, for the report of the jury speaks of it with a definiteness which indicates that it had long been discussed.

THE next step was to institute a competition for designs, in which these recommendations should be followed. Three prizes were offered, of three thousand, two thousand and one thousand dollars, and eighteen designs were received. All these were rejected, as unworthy of any prize, that of Joseph Mengoni, of Bologna, alone receiving honorable mention. The public was dissatisfied with this negative result, and the jury, finding it advisable to make some definite recommendation, proposed that, although M. Mengoni's design was unsuitable for execution, he should be employed by the municipality to make further studies. The town Government then decided to separate the arcade project from the general plan of the rebuilding of the square, and employed Mengoni, with two other architects, Pestagalli and Matas, to make independent plans for the arcade alone, each of the three receiving six hundred dollars for his trouble. The same architects were also instructed to prepare a design for the remaining part of the square, and eight hundred dollars apiece were allotted for this work. Matas was soon called away to supervise the building of the new front of Santa Croce, in Florence, and that of the Cathedral of Santa Maria del Fiore, and gave up his Milan commission. No one was named in his place, and Mengoni and Pestagalli were left alone as the official competitors in the third trial. Five other architects, however, volunteered plans, but they proved much inferior to the carefully studied schemes of Mengoni and Pestagalli, and received no serious consideration; and the jury finally reported, recommending Mengoni's plan for adoption for the arcade, and advising a new competition between him and Pestagalli for the other portions of the square. This was in September, 1863. The people of the city, impatient to have their scheme realized, rejected the jury's proposition for another competition, and a few days later, the city government adopted Mengoni's whole plan, and resolved that the execution of his designs, both for the arcade and the square, should be confided to him without further delay. Mengoni went immediately to work, and, six months later, presented working-plans, which were definitively adopted, and a preliminary contract signed between the mayor of the city and the representative of an English corporation, called "The City of Milan Improvements Company, Limited," formed expressly to carry out the work. The contract provided that the city should cede to the company a certain amount of land, for a fixed price, and should pay half the cost of roofing with glass the covered street, besides guaranteeing five per cent interest for twenty years on its capital, of sixteen million francs, or something over three million dollars. The company bound itself to complete the arcade, or gallery, in two years, and the rest of the work in six years. The gallery was finished within the contract time, and was dedicated, with great solemnity, in 1867, the triumphal arch at the entrance being all that remained incomplete. The company pursued the work on the square for two years longer, but then, partly as a result of the Continental disturbances of the period, fell into financial difficulties, and, in 1869, abandoned to the municipality all its contracts and privileges, with all its lands and its completed work, receiving in payment seven million three hundred thousand francs. The city authorities continued the operations, under Mengoni, with whom was associated the engineer Chizzolini. The work went on rather slowly, and, in 1877, the arch at the entrance of the gallery was just receiving the finishing touches, when the unfortunate Mengoni fell from the top of it, and was killed.

A STRIKING illustration of the carelessness which long security produces in persons entrusted with responsibility is afforded by the official account of an accident which recently took place in the railway station at Zurich. At this station, as at so many others, track-room is limited, and one of the tracks, which is specially intended for the inward trains from the Baden division, is used also for making-up outward trains, but with the condition that the track shall be completely cleared at least three minutes before the schedule time for the arrival of each Baden train. To make sure that, even if this standing order is disregarded, the incoming trains shall have ample notice of danger, so that they can stop in time to avoid it, three separate signals are arranged, one at the signal-box, far in advance of the station, one at the switching-house, and one at the station. From each of these places the whole length of the tracks leading in and out of the station can be seen, and the watchers at each post are not merely required to signal in case of danger, but must examine the track, and set the signal

of safety, only if it is clear; while the engineer of the incoming train is allowed to proceed past a signal-station only in case the safety-signal is set.

IN the present instance, a train had been made-up, as usual, on the Baden track, and had drawn out of the station, leaving, however, some empty cars on the track. A Baden train was due, and, although the empty cars were in plain sight from every one of the three signal-stations, the watchman at every station set the signal denoting safety, and the engineer of the Baden train, seeing all the signals set for a clear track ahead, drove his train along, and dashed with nearly full force into the empty cars, destroying them, and a part of his own train, and seriously injuring one passenger. What makes this performance still more astonishing is that the engineer of the Baden train, if he had taken the trouble to look where he was going, could not have failed to see the empty cars on the track, and might easily have stopped his train by the steam brakes in time to avoid a collision. The railroad officials themselves express their amazement at the mass of carelessness which must have contributed to cause the accident, but suggest an explanation by saying that, just at the moment, a balloon was passing over the track, and it is possible that all the people who ought to have been attending to their responsible duties were looking at that instead. If the consequences of the accident had been more serious, the courts would probably have a chance to say whether the appearance of a balloon is sufficient to justify three signal-men in looking at it instead of at the track which they are appointed to guard, and in setting the signals for safety, so that trains might run by without disturbing their studies; but the only person injured was a poor cowherd, who is not likely to wish to involve himself in a law-suit, and railway passengers will therefore do well, for the present, to remember that, when interesting phenomena present themselves during the passage of a train, the train-hands and signal-men may need their undivided attention for observing the novelty, and those of the people in the cars who object to being left to their fate, should themselves put their heads out of the windows, and jump off if they see anything ahead which they do not like to run into.

THE Philadelphia *Real Estate Record* is surprised and grieved to hear that the architect of the new Equitable Insurance Building in Baltimore has been to Europe to select a suitable stone for the building, and, after visiting several quarries, has contracted for the stone needed. It thinks that there is, or ought to be, building-stone enough in the United States without going to Europe for it, which is undoubtedly true; but, if any one prefers a foreign stone, there is no objection, that we can see, to his using it. Apart from marble, which can be had from Italy of a better quality, for a given price, than from any American quarry yet opened, foreign building-stones are not likely to compete seriously with our own. Although, as the grain-ships from this country often bring back building-stone as ballast at a very small charge for freight, the foreign stone can be had in the Atlantic seaports for about the price of the native sorts, they present no special advantages of color or texture, and have the objection of being comparatively untried in this climate. Obviously, a stone which bears exposure for centuries in the mild climate of England or France may be torn to pieces in a few years by our winter frosts, and there is no absolutely reliable test, except that of practical experience, for ascertaining what the behavior of a stone will be under a temperature of 20° below the Fahrenheit zero, so that architects are always disposed to favor materials which have had a thorough trial in the climate in which they are to be used.

THE New York *Tribune* makes an addition to the list of portrait-decorations of American buildings. On the roof of Mr. W. K. Vanderbilt's house, it says, on the corner of Fifth Avenue and Fifty-first Street, New York, is a figure of a workman, seated, as if resting. This figure is a portrait of Mr. Richard M. Hunt, the designer of the house, and the venerated President of the American Institute of Architects. The *Tribune* says that it is a good likeness, and may easily be recognized from the street.

LIBRARIES.¹—III.

MEDIEVAL AND MODERN TIMES.—(Continued.)

THE most remarkable of all the public libraries of to-day is the National Library at Paris; it dates in reality from Charles V, who, in 1367, ordered the deposit of a considerable number of books in one of the towers of the Louvre. The use of these

first story was occupied by a collection of paintings, a chapel, a library, etc. Another building parallel to the Rue Vivienne was especially arranged for princely fêtes and receptions. The whole was soon adorned with masterpieces of art from all parts of the world.

In 1647, the Mazarin library already admitted all students who desired to avail themselves of its treasures. On the death

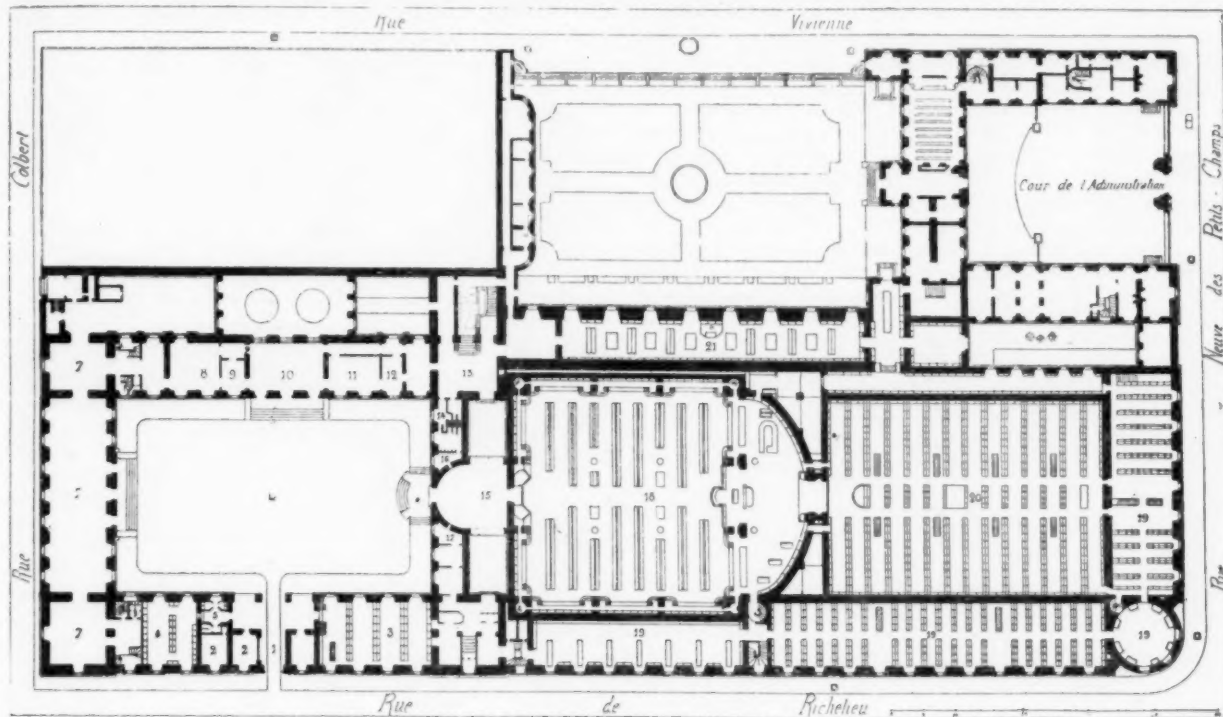


Fig. 11. Plan of the National Library at Paris.

- | | | | | |
|-------------------|---|-----------------|---|-------------------------------|
| 1. Main Entrance. | 5. W. C. | 13. Stairway. | 17. Bar. | 21. Département des Estampes. |
| 2. Concierge. | 6. Court of Honor. | 14. W. C. | 18. Salle de travail of the Département des Imprimés. | |
| 3. Entry Office. | 7. Periodicals. | 15. Vestibule. | 19. Magasin. | |
| 4. Periodicals. | 8-12. Administration, Vestibule, Offices. | 16. Cloak-room. | 20. Central Magasin of the Département des Imprimés. | |

works was not reserved exclusively to the king; men of letters were allowed to consult them. On the death of Charles V, a portion of the books were stolen by the great lords and the rest were sold to the duke of Bedford for the sum of 3,323 livres, 4 sous. Charles VII and Louis XI did but little to repair the loss of the Louvre library, but a new collection was begun, which Charles VIII enlarged materially, thanks to the advance made in printing during his reign. Louis XII incorporated this Library of the King with the Orleans library at Blois, which he had inherited. Francis I added the library of the counts of Angoulême and in 1427 removed all the works of his private collection and all that had been gathered at Blois to Fontainebleau.

Charles IX transferred the royal library to Paris. Henry IV removed it to the Collège de Clermont (Lycée Louis-le-Grand); in 1604 another change was made, and in 1622 Louis XIII had it installed in a house in the Rue de la Harpe belonging to the Cordeliers. When Colbert had so enriched the collection that these quarters proved too cramped for its accommodation, another removal was found necessary; it was therefore installed in the Rue Vivien (now Vivienne).

Louvois conceived the idea of settling the collection permanently in a building specially designed for its reception. For this purpose he selected the Hôtel Vendôme, and entrusted Mansart with the task of making plans for its installation there, but these were abandoned at the death of the minister. The library was soon afterward removed to the Mazarin palace, its present habitat. This palace comprised, originally, the Hôtel of President Charles Duret de Chivry at the corner of the Rue des Petits-Champs and the Rue de Richelieu, and that erected for President de Tubeuf by Lemuet, at the corner of the Rue des Petits-Champs and the Rue Vivien, as well as a detached structure of less importance standing between the two. François Mansart completed these residences and converted them into a palace worthy of the all-powerful cardinal. A large building was constructed on the Rue de Richelieu, on the ground floor of which were the cardinal's stables, while the

of Mazarin, the duke de Meilleraye became proprietor of a portion of the palace, while Philip Mancini, the minister's



Fig. 13. National Library; Book-shelves of the Reading-room.

nephew, inherited the rest. The library fell to the Collège des Quatre-Nations.

¹ From the French of Emile Camut, in Planat's *Encyclopédie de l'Architecture et de la Construction*. Continued from No. 825, page 37.

In 1698, the duke de Nevers deeded to Madame de Lambert a part of the building skirting the Rue de Richelieu, toward the Rue Colbert. In 1719, Law purchased for a million francs the whole of the Mazarin palace, together with five structures which had been erected on the Rue Vivienne, and which occupied a part of the site of the cardinal's gardens. Law entrusted the architect Mollet with the task of transforming the old palace into a suitable building for the accommodation of the royal bank and the Compagnie des Indes; he decided also upon the extension of the gallery parallel to the Rue Vivienne as far as the Rue Colbert. Pellegrini decorated the old apartments which the cardinal had not completed. A specimen of Mollet's architecture is to be seen in the door on the Rue des Petits-Champs.

Under the Regency the king acquired possession of the building of the Compagnie des Indes and the arrangement of the manuscripts there was begun in 1721. In 1724, the group of structures was formally taken possession of for the royal library, and the architect, Robert de Cotte, was chosen to conduct the work of installation. A building parallel to the Rue de

tions of the convents of Paris and those of the *émigrés*, was opened to the public. Early in the present century these quarters were found to be inadequate to meet the requirements of the library and it was proposed to remove it to the Louvre; but the wars of the Empire delayed the execution of this project. The feasibility of transferring it to the Madeleine was also discussed, and a plan for the remodelling of the church to that end by MM. Peyre and Fontaine obtained much favor, but it was at length abandoned.

Other plans were presented by MM. de Gisors, Visconti, etc.; it was only after a heated debate on the subject in 1845 that it was decided that it should remain where it was. In 1821, under Louis XVIII, those portions of the Mazarin Palace which had continued to be occupied by the Bourse and the Treasury were turned over to the library.

In 1854, M. Henri Labrouste³ was appointed to succeed M. Visconti as architect of the Imperial Library, and it is to him that we are indebted for an edifice worthy, indeed, to shelter all the literary treasures of the old Library of France. M. Labrouste began his labors with the restoration of the

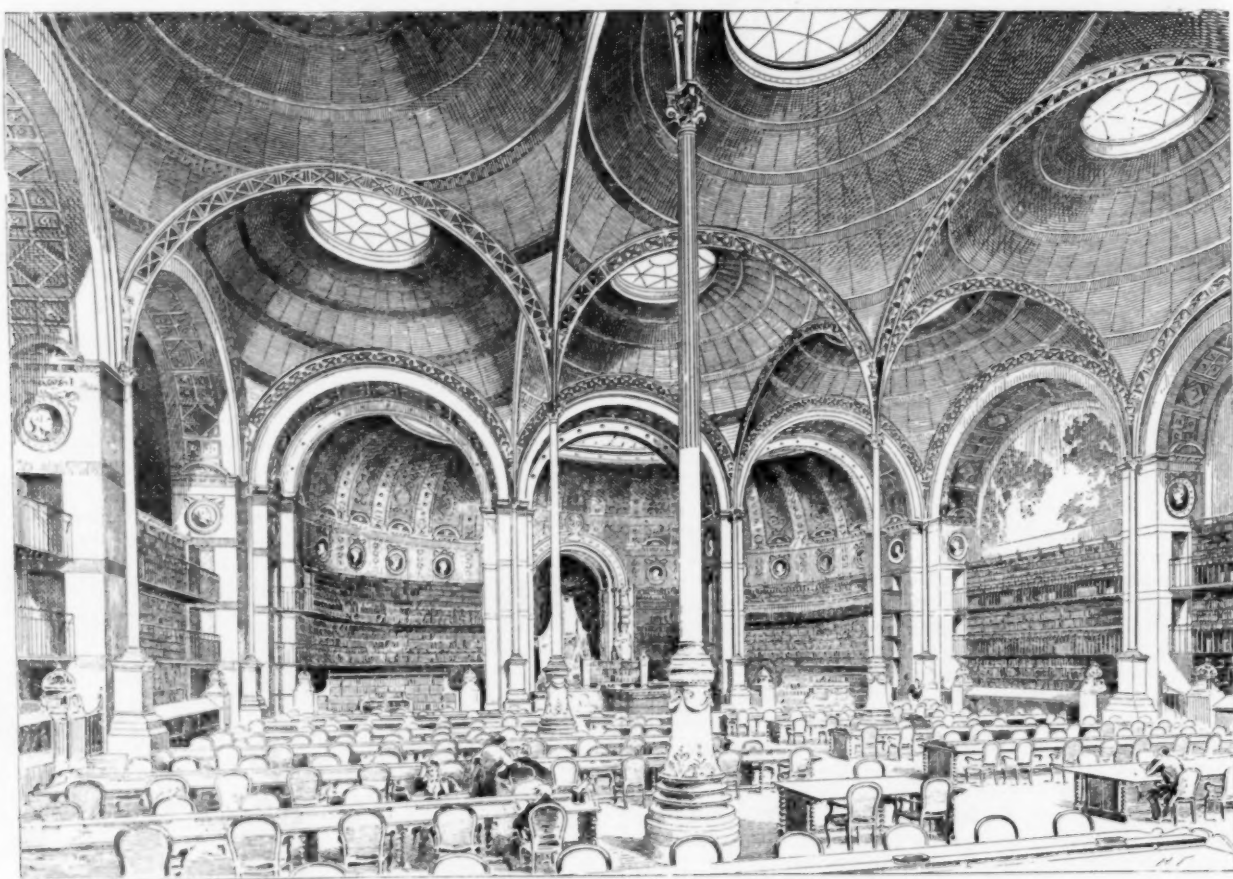


Fig. 12. View of the Reading-room (Salle de Travail) of the National Library, Paris.

Richelieu and another at right angles to it on the Rue Colbert were erected under his directions, as well as a special hall for the globes which Count d'Estrées employed Coronelli to make for Louis XIV, and which Louis XV had deposited in his library in 1722.

In 1741, the royal coins, medals, etc., were removed from Versailles to Paris and arranged in one of the halls of Madame de Lambert's apartments. This room was embellished with wainscoting, some of the sculptured portions of which, enriched with gilding, framed in paintings by Vanloo, Natoire, Boucher and others.

The *Cabinet des Médailles* was reached by a stairway in the building at the corner of the Rue Colbert,¹ and communicated with the library by means of a vault which spanned the Rue Colbert and traces of which can still be seen on the old building.²

In 1792, the library, which had been enriched by the collec-

Hôtel Tubeuf; his plan of enlarging the library was not put in execution until 1859. In 1867 he completed the structures adjoining the Hôtel Tubeuf, the rotunda at the corner of the Rue de Richelieu and the Rue des Petits-Champs, a portion of the building skirting the Rue de Richelieu⁴ and the main *magasin* and the great *Salle de travail* of the *Département des Imprimés*.⁵

The building fronting on the Place Louvois and the pavilion at the angle of the Rue Colbert were not finished until 1873. Between 1877 and 1889, M. L. Pascal reconstructed the building extending along the Rue Colbert, and at the same time, under his able direction, the structure at the rear of the court of honor, designed by Robert de Cotte, was fully restored and fitted up for the *Département des Manuscrits*; the court of honor was definitely laid out, the principal entrance of the library on the Place Louvois was completed, and important alterations were made for the improvement of various services.

¹ Now occupied by the *agence des travaux*.

² Consult the "*Essai historique sur la bibliothèque du roi*," by Leprince. Edition enlarged by Louis Paris (Paris, 1856); also "*La bibliothèque, ses accroissements et son origine*," by Mortreuil, Paris, 1878.

³ M. Labrouste had already constructed the Library Sainte-Genève.

⁴ On the site of the Hôtel de Nevers.

⁵ See the general plan.

We may now enter this vast edifice and study its interior arrangement. Crossing the court of honor (Figure 11), we reach a vestibule which leads to the great *Salle de travail* of the *Département des Imprimés*. This, the reading-room for students, furnishes accommodation for nearly four hundred readers (Figure 12). It is divided into nine bays by sixteen cast-iron columns supporting spherical cupolas, the successful disposition of which marks a distinct advance in the art of architecture. Iron is employed both as a constructive and a decorative element. However, it is not the sole material used in the main construction; the side walls are of stone, and impart a grand architectural effect to the ensemble.

The light is admitted through three large semicircular arches in the entrance wall, through an oculus in each cupola and through the glass roof of the hemicycle.

The six side arches are filled with presses disposed in three stories. The bindings of the eighty thousand volumes which they contain add their varied colors to the decorative tones of the architecture (Figure 13). Above the presses, the tympanums of the arches are embellished with grand landscape motives from the brush of M. Desgoffes. At the springing of the transverse ribs, medallions of celebrated men decorate the walls. The door at the rear of the hemicycle is adorned with two caryatides; it gives access to the vast central *magasin* of the *Département des Imprimés*, which contains nearly one million volumes, systematically arranged in presses of five stories.

The ground-floor of the building on the Rue de Richelieu and the rotunda, as well as the wing on the Rue des Petits-Champs, are annexes of the central *magasin*. All the upper stories, from the rotunda to the pavilion on the Rue Colbert, are likewise appended to it.

The *Cabinet des Médailles* occupies rooms in the first story of the building on the Rue de Richelieu, extending from the rotunda to the first pavilion fronting on the Place Louvois.

The first story of this last edifice contains the *réserve* of the *Département des Manuscrits*. It is here that the most valuable books, which are accessible only to a special public, are kept. At right angles to this, on the Rue Colbert, and in the same story, there is, for the time being, a reading-room, which is open every day of the year to those persons who are not admitted to the *Salle de travail* of the *Département des Imprimés*. The ground-floor of this building is used for periodical literature. The edifice at the rear of the court of honor contains, on the ground-floor, the offices connected with the administra-

tion. Access is had to these through a central vestibule in which M. Pascal has placed, after having had them restored with great care, the most interesting portions of the wainscoting of the old *Cabinet des Médailles*, the frieze-panels painted by Boucher, as well as the portraits of Louis XIV and Louis XV, which were likewise in the same apartment (Figure 14). The old gallery in the first story, belonging to the time of Louis

XV, has also been restored (Figure 15), and M. Pascal has put in furnishings in a style worthy of his genius; he has also added two stairways of great beauty to the old cases. This gallery is now the reading-room of the *Département des Manuscrits*.

In Mazarin hall, on the other side of the stairway, the rarest manuscripts and books of the collection are exhibited. The vaulted ceiling is divided into compartments decorated by Romanelli. Opposite the windows there are elliptical niches adorned with landscape motives by

Grimaldi; they are occupied by figures of the benefactors of the library.

Beyond the Mazarin gallery are the residence of the administrator, the apartments of various employés, a book-binding shop, a hall for archaeological lectures, the *Département des Cartes et la Géographie*, photographic rooms—and other secondary services. This part of the old palace will also soon receive the *Département des Estampes*, now on the ground-floor of the Mazarin gallery.

We would call attention, in closing this sketch of the National Library, to the gardens on the Rue Vivienne and to the grounds beyond as far as the Rue Colbert, which, since 1882, have been reserved for the enlargement of the library.¹

The circular hall of the British Museum offers a simple and convenient disposition. The librarians' desks are in the very centre of the hall, so that all the books are at equal distances from the office of the employés charged with their distribution; this is a most advantageous arrangement in view of the time required for the numerous handlings which the books undergo in a day.

M. Smithmeyer studied the time-saving question with great care in making his plan of the Congressional Library at Washington; the result is that the four large rooms from which the reading-room is fed are stationed on two diameters, at equal distances from the centre.

The arrangement of the furnishings of the circular hall may,

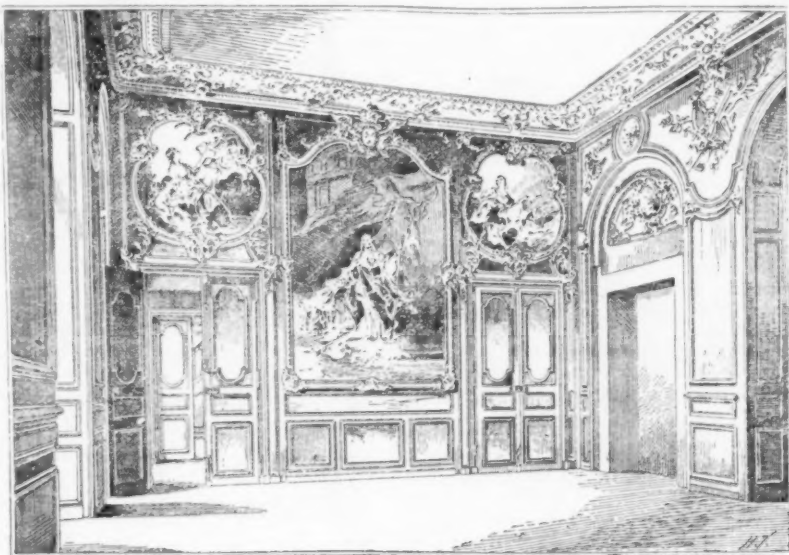


Fig. 14. National Library; Central Vestibule.

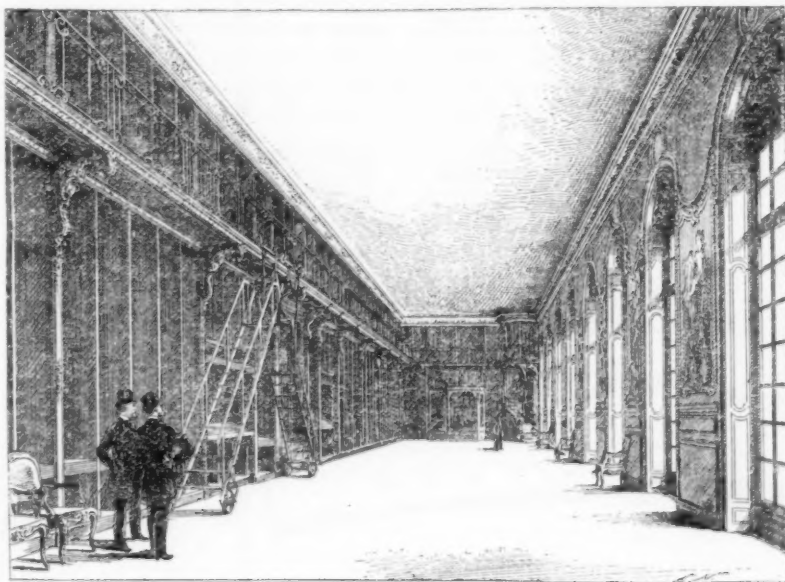


Fig. 15. National Library; New Salle des Manuscrits.

¹ The architects of the library are as follows: Robert de Cotte, father and son, eighteenth century. — Bellissen, 1796. — Bellanger, 1791, 1821. — Delaunoy, 1811, 1823. — Visconti, 1824, 1854. — H. Labrousse, 1854, 1875. — L. Pascal, 1875.

in a certain measure, facilitate the researches of students. It can readily be seen that if the cases containing the reference books, catalogues, etc., which in every library are put at the free disposition of the public, converge to the centre of the hall, the reader will easily find, after application at the office, the shelf that will furnish him the information which is to direct him in his work. First of all, therefore, a public library ought to be so arranged as to facilitate the researches of the reader and enable him to obtain, in the shortest possible space of time, access to the required volumes.

(To be continued.)

THEATRICAL ARCHITECTURE.¹—II.

THE HEIGHT OF THE BUILDING.

THE importance of a limit to the height of a theatre comes next to that of a desirable site, and, in fact, as will be seen, must be studied when choosing the site. When it is considered how difficult it would be for one to escape from the top seat of the top-most gallery in cases of panic or alarm, it will be acknowledged how necessary it is to keep down the height of the building, and to do so without limiting the number of seats is the problem the architect has to solve, and a difficult one, too.

Perhaps the best way to obtain what is desired is to adopt the system now so often employed in the world's metropolis, whereby an average is struck by placing part of the theatre below the ground, and seating everybody as near the street level as possible. In cases where the site is isolated, and at the same time on a slope, this is an easy matter. Perhaps the most perfect site of this description in London is that of the Savoy Theatre, on the Embankment. The theatre stands on a hill sloping up from the grand entrance vestibule in the front to the stage at the back. The vestibule is on the level of the dress circle, and the space for the stage is excavated so that the "flies" are on the street-level at the back, the stage being entirely below the level of the roadway. By drawing a line from the front of the vestibule to the back of the flies, you obtain the slope of the side streets, and divide the theatre into two triangles, the lower one containing the pit and stage below the street-level, and the upper triangle containing, about the ground level, the upper circle and gallery; while the dress circle is on the intersecting line, and is entered from the vestibule at the street-level in front. By

the natural advantages of the site being most cleverly adapted to the required purposes of the architect.

But it is seldom that a site can be obtained in a city on a hillside. Where a site is level throughout, the arrangements for neutralizing

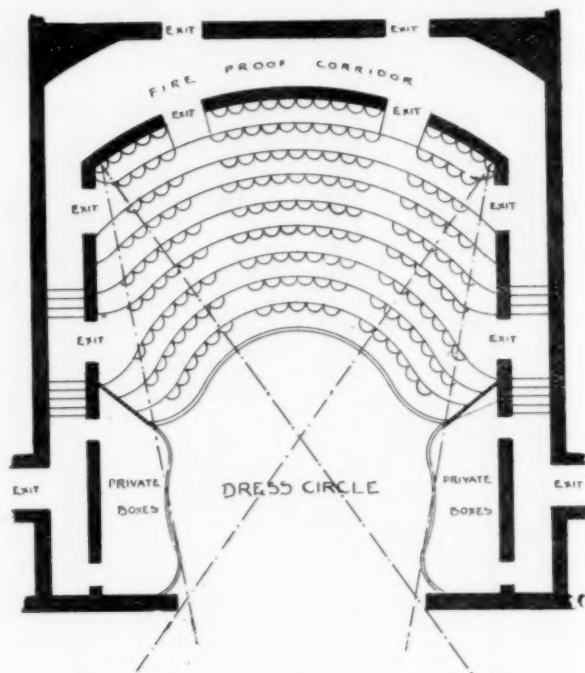


Diagram showing Division between Auditorium and Corridor. All Openings to be filled with Fire-resisting Doors.

the heights are not so easily carried out; but still, by excavating for the lowest floor, the chances for all sections of the audience escaping are made equal. There should, of course, be a limit to the depth of

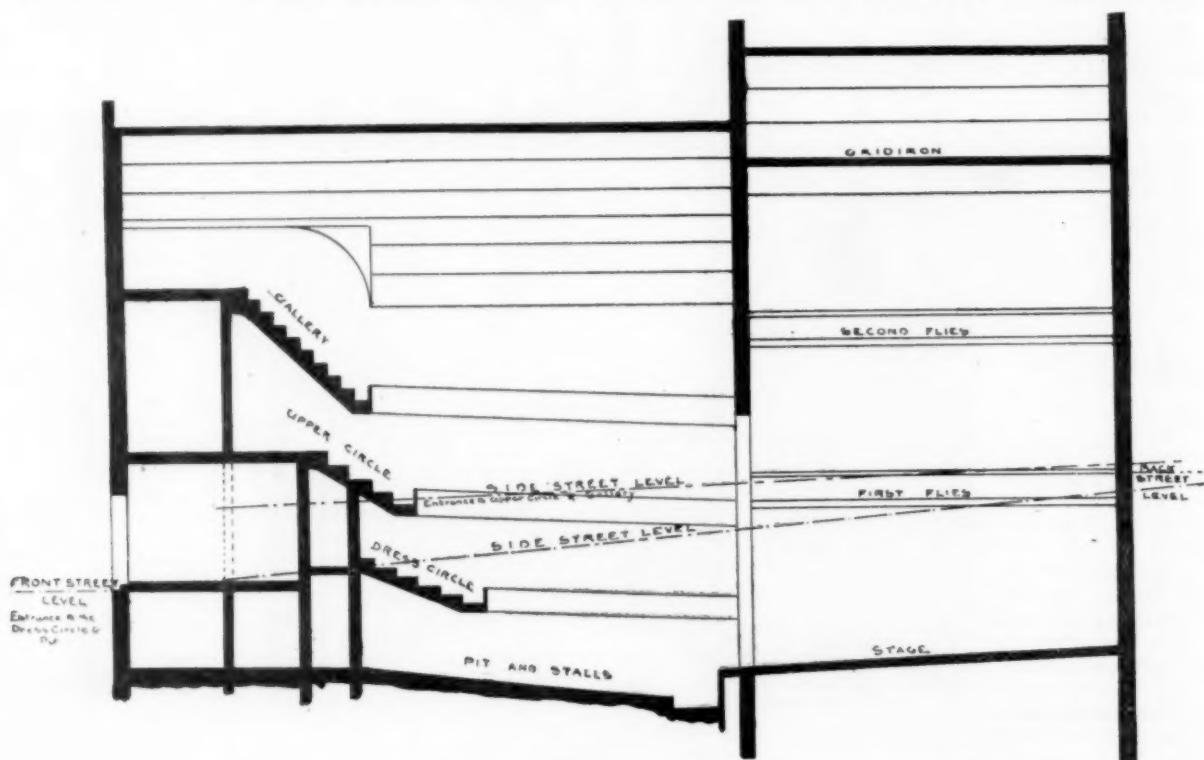


Diagram showing Section of a Theatre on a Sloping Site with Dress Circle and Stage below the Level of the Street.

this means the pit is reached by a few steps down, being entered from the bottom of the hill, or the lowest part of the site. The upper circle is entered half-way up the hill from one of the side streets or on the same level as the upper-circle seats, which are thus reached without going up a staircase, and the gallery is entered in such a manner as to reduce the length of the staircase to a minimum. Every seat is thus placed within a reasonable distance of the street,

excavation, and I would suggest that no section of the audience, with the exception of the pit and stalls, should be below the ground line, and that no seat be lower than twelve feet below the level of the street at the exit from such seat.

There are, of course, cases where excavation is impossible, on account of drainage, the nature of the soil or adjacent property. To meet this case, some limit must be put upon the height. The first tier, or dress circle, is placed from the street, otherwise the top gallery will be at a dangerous height, and this must be governed by

¹ By Ernest W. E. Woodrow, A. R. I. B. A. Continued from No. 824, page 30.

the headway allowed between the pit floor and the ceiling under the circle tier, which should be at least ten feet at the back of the pit: so one may allow twelve feet as an average height for the floor of the dress circle above the entrance vestibule on the ground floor: this certainly should not be exceeded. The remaining tiers must be entirely designed upon the necessity of ample headway between the floor and ceilings of the tiers, so that a good circulation of air may be obtained for the comfort of the audience. The desirability of limiting the number of tiers has been felt in Continental cities, and we find that in Italy there are not permitted to be more than three, exclusive of the gallery, and in St. Petersburg theatres must not contain more than four tiers or galleries in addition to the pit.

It, of course, follows from what I have said that a theatre must stand on or below the ground, and under no circumstances be built

must, of course, be the large or proscenium opening in this wall, which must be filled by a fire-resisting and smoke-proof curtain. The wall must pass under the soffit of the stage to divide the mezzanine, or under portion of the stage, from the orchestra, and the one or two doorways leading into the orchestra must be fitted with self-closing iron or fire-resisting doors. There should only be one other opening in this wall—a pass-door on the stage-level into

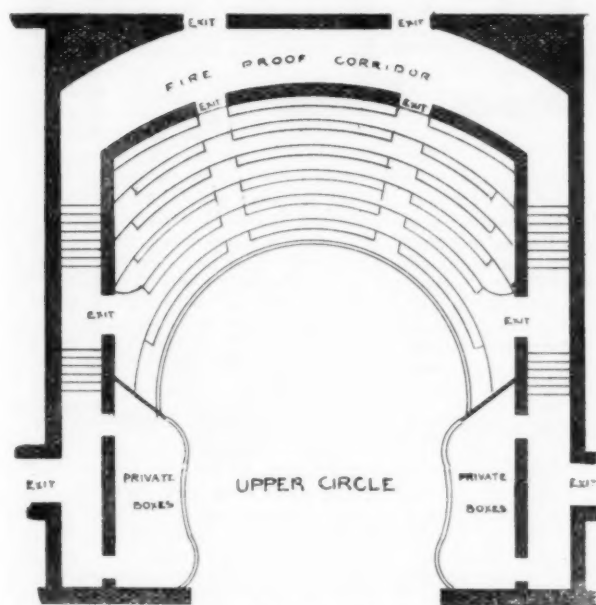


Diagram showing Division between Auditorium and Corridor. All Openings to be filled with Fire-resisting Doors.

over any other premises, or even a part thereof, but must be contained within its own walls from foundation to parapet, and this brings me to the consideration of the next point, i. e.,

THE DIVISIONS AND PARTY-WALLS.

For the purposes of the present paper, I shall divide the theatre into three sections: the auditorium, containing the entrances, staircases and tiers of seats, the stage, with its appurtenances—wings, flies, gridiron, cellar and mezzanine—and the dressing rooms and workshops.

Now each of these larger divisions must be built as one distinct building, self-contained, and divided by proper party-walls and

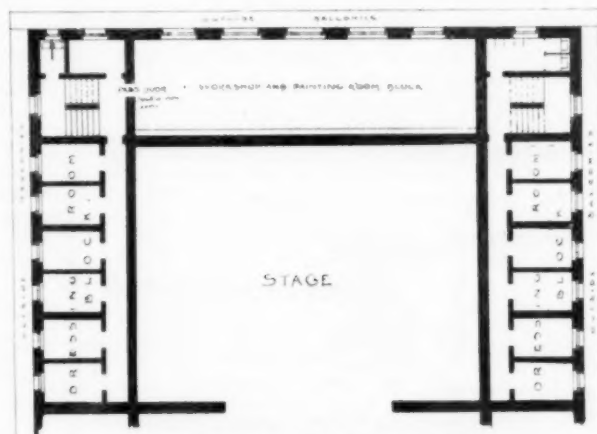


Diagram showing Party Divisions in relation to the Stage, Dressing-rooms and Work-shops.

party structure, so that, should a fire originate within one of these sections, it can be kept from spreading to either of the other two in the manner of water-tight compartments in a ship.

The auditorium and its adjuncts must, therefore, be divided from the stage by a big proscenium dividing wall, which must start at the level of the foundations of the main walls, and pass up and through the roof to a height of at least three feet above the roof, such height being measured at right angles to the slope of the roof. There

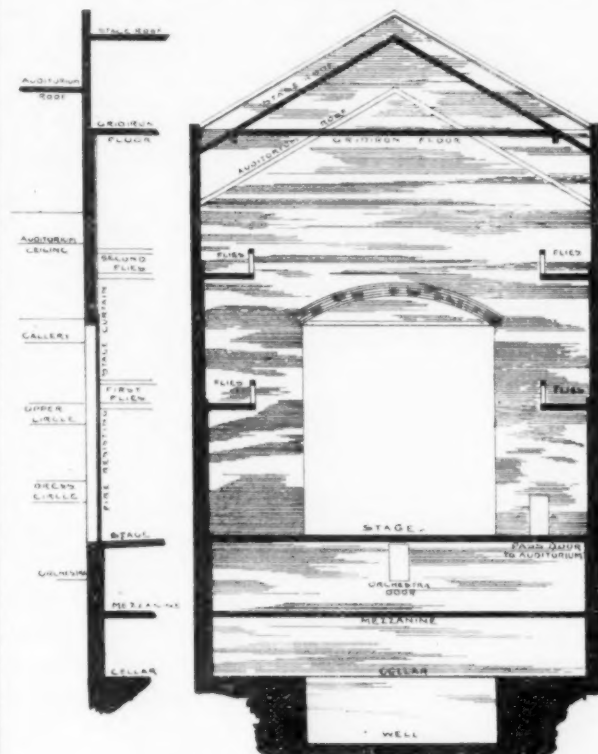
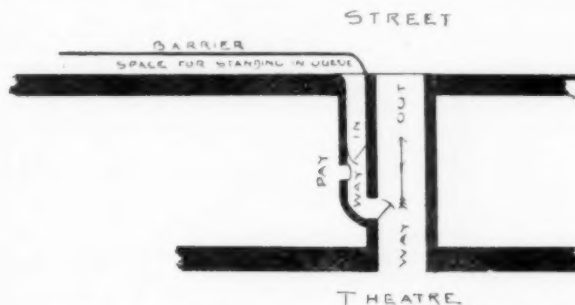


Diagram showing Elevation and Section of a Proscenium Wall with Hipped Roof over Auditorium and Stage.

the auditorium. This opening should also be fitted with a fire-resisting, self-closing door. The portion of the wall over the proscenium opening should be carried on a brick arch or a thick oak beam, for, if on an iron girder, there is the risk of the wall coming down when the action of fire weakened the girder.

Again, the stage and its appurtenances must, in like manner, be divided, by good, honest brick-walls, from the work-shops, dressing-rooms, etc., the walls being carried down to the footings and up through the roof, as described above, for the proscenium wall.

Still further, we must not be content with our three larger divisions, but carry the party wall system to our minor divisions, so that every dressing-room will be separated by brick walls and fire-resisting floors and ceilings, and every workshop, store, office, scene-dock, or painting-room be made a separate fire-risk as far as possible. Let every staircase and corridor and means of egress be contained in brick walls, and let the steps and landings be fire-resisting. Build



Example of an Entrance on the Queue System with Direct Exit to Street.

so that, should a fire originate in any of the minor sub-divisions, it will, if not extinguished, burn itself out within the room in which it originated, and not spread to any other portion of the building. Fill all openings with fire-resisting doors made self-closing, so as to ensure the openings not being left unprotected at any time. We shall consider in detail, below, the various materials of which these fire-resisting doors are made, as well as the best method of filling the proscenium opening with a fire curtain.

THE AUDITORIUM. — ENTRANCES AND EXITS.

We have seen that upon the site depends the number and efficiency of the entrances and exits; and it is universally acknowledged that precautions against panic are as desirable as precautions against fire. If the audience knows there are plenty of available exits, they will have a feeling of safety and confidence that will go a long way to overcome alarm. Panic is a form of nervousness that it is hard to subdue, yet it can be cured, and the architect is the physician who has the remedy in his hands. By building a theatre as safe as human means and experience will permit, much can be done to bring the chances of panic to a minimum, and one of the most important details to study is that of the means of ingress and egress to the building. I have spoken of the want of ample "available" exits, and I use the word advisedly, for too often are "extra exits" found of no avail, being locked, bolted or otherwise blocked up. Again, they are not always used rightly, and are unknown to the audience, who naturally turn to the door they entered by when about to leave the building. For this reason, which from years of observation I have found to be invariably the case, there never should be such a thing as an extra exit, but all exits should also be entrances and used nightly. Half the audience should be admitted to half of each section of the seats by one entrance, while the other half of the audience are simultaneously admitted to the other half of the seats, in either pit, circle or gallery, by the other door — simultaneously, in order to avoid any precedence and overcrowding of one entrance over the other. In this manner the entrances would always be the exits, and it would, therefore, be certain that the audience would easily find their way out, and that they would be used nightly. This is done at the pit at Drury Lane Theatre, and could be practised everywhere else, provided the architect designed his theatre with this object in view. By this means confidence would be created in the minds of the audience and they would feel that their safety depended greatly upon their own judicious use of the ample means of safety provided for them.

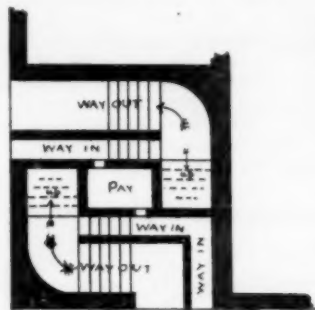
Could the public become better acquainted with the means of egress, they would feel more at home when visiting the "play-house." I must say their fear is not so much to be wondered at, when one considers the tortuous passages that so often form the entrance; passages in which one becomes lost, and which one enters with the feeling that to find the way out again, undirected, would be impossible. The system of making the entrances and exits one, and at the same time sufficient, would do away with this.

Never should anything appear that suggests the possibility of danger. Such notices as "Fire exit," "Emergency exit," "Exit in case of need," "Alarm exit," "Exit in case of fire and panic"; should never be seen in a theatre, as they put into the minds of an excitable people the probability of an evil that can only be overcome by presence of mind and pluck. There, however, should be many notices painted on the walls calling attention to, and directing to by arrow or hand, the "way out." These should be painted directly onto the walls, not on separate placards, which are apt to be torn down. All doors which are not exits, and do not lead to them, should have their various distinctive appellations printed on them, as for example, "cloak-room," "office," "saloon," "lavatory," and under each there should appear the words *No Exit* in large characters.

In order to further assist the audience the architect cannot show his skill in a more efficient way than by producing great simplicity and uniformity in his plan. We know that the public like to be able to find their way about the building with ease. Of course it is impossible to let every one have the run of the house, and thus learn the ins and outs of the building, but it is quite possible to so arrange the parts that the plan can be comprehended almost at a glance. Therefore, in the first instance, the architect should, when placing an entrance, an exit, or a staircase on the right, have a corresponding entrance, exit or staircase on the left; where the "pitties" go out on the south let them also go out on the north; if there is a gallery staircase on the east, let there be another in a similar position on the west. In the second place, the manager can come to the assistance of the architect by printing a plan on the programme of the section of the house in which such programme is sold, with the passages, staircases and exits clearly shown, so that, when waiting for the curtain to go up, the audience may acquire more useful knowledge from the back of their play-bill than the excellency of somebody's soap or the effectiveness of a quack's pills. I would also advise the placing on the walls, in a conspicuous place, larger plans of the sections of the seating with the corresponding exits.

The manner in which the British public, and I dare say it is the same in other countries, enter places of public entertainment, is a crying shame to the advanced times of civilization that we boast of now living in. Scenes may be witnessed, nightly, at the entrances of the pit and gallery of our West End theatres, when popular pieces are running, where the weak go to the wall amidst the pushing and fighting to obtain the front seats. Architect and manager — but especially the architect — are to blame for this condition of affairs. As long as the entrances are but narrow doors, immediately abutting on the pavement, this state of affairs will last. It is true that in some of our new theatres this evil has been obviated and provision made for the "queue" system, whereby the people stand in a line, one behind each other, taking up their position in order, as they arrive on the scene, and walk in quietly one by one when the doors open, knowing full well that pushing will not avail them anything, for they must pass in Indian file through the line of barriers

placed in order that the first comer may be the first served. An excellent example of this "queue" system was enforced at the Paris exhibition in the Eiffel Tower. The Savoy, the Shaftesbury Theatre, and the Royal English Opera House, all adopt this manner of entrance, and many of the better, but poorer classes, who could not face a "squash" and cannot afford a half-guinea stall, are enabled to participate thereby in the enjoyments of the play.



Example of One Pay-box to Two Staircases.

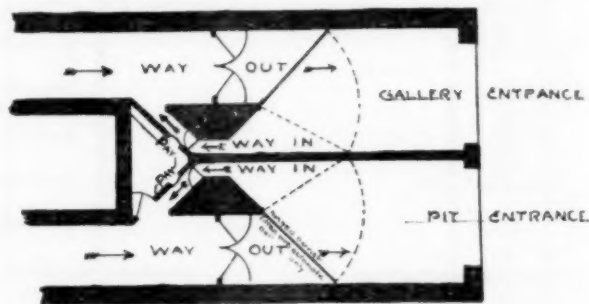
to take off one-half of the audience seated in the section to which they belong. I repeat this and lay stress upon it on account of its vital importance. All exits should deliver by short passages or staircases leading directly into the street and not into a common hall or vestibule to which several streams of people converge. Entrance vestibules and foyers are certainly needed where the "dress" part of the audience may wait for their carriages, but each division of the audience should enter the vestibule in such a direction that no two streams would come into opposite contact. At the same time additional exits should also be provided for these people leading straight into the street without passing through the vestibule.

Considering what amount of exit is required in order to obtain perfect safety for the public, we cannot do better than glance for a moment at what is insisted upon in various cities throughout Europe. For Italy the regulation is that the staircases and exits, as well as the corridors, shall be wide and commodious, and that the pit shall have at least three principal exits, one at the back and one on either side of the pit; the gallery shall have two staircases and two separate exits, and a separate exit leading directly into the street shall be provided at the back of the stage for the use of the persons employed on the stage. In Brussels it is compulsory that every division of a theatre shall have at least two exits; and in St. Petersburg, for every hundred and fifty persons there must be a separate exit, and the vestibule must have a sufficient number of exits without internal lobbies. In Hamburg there must be a separate means of egress for every two hundred people.

The width of the exit is of course of vital importance. To make a corridor or staircase too wide is almost as great a fault as to make it too narrow, and for this reason: people going up or down a staircase or along a corridor naturally cling to the handrails and walls for support; those that are not next the wall clutch hold of those that are, and where a staircase or passage is very wide they are apt to pull each other over and stumble over the fallen bodies, and thus cause a block.

The practice in London is to make the exits from four feet six inches wide to six feet wide, and not more, as three people can then go abreast, two holding on to the walls while the third is supported between them. Where this width is insufficient to accommodate the number, additional and separate exits should be made. The width should not be increased beyond six feet to provide the required space.

In Brussels the exits have to be three feet three inches for every hundred persons, while in St. Petersburg the demand is four feet



Example of One Pay-box being available for Two Entrances.

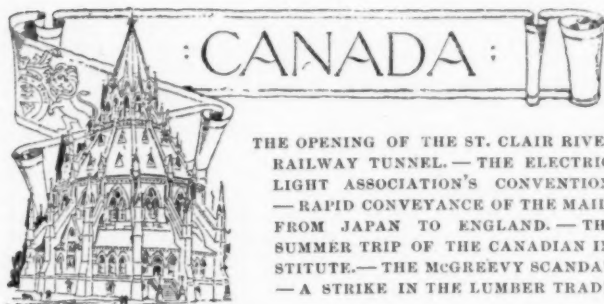
eight inches for every hundred and fifty, a most liberal provision. From my own experience I should say a safe width would be four feet six inches for every two hundred and fifty persons. The present regulation in force in London allows four hundred for this width and an additional hundred for every additional six inches up to a maximum width of nine feet, provided that in every case where

the staircase is six feet wide and upwards a dividing handrail shall be provided. My own views are, that dividing handrails are dangerous, and I know of cases where they have actually had to be removed after being fixed in accordance with this requirement. It is far better to limit the width and increase the number of exits.

Pass-doors from one part of the house to another, connecting two entrances, passages or staircases, are often a source of evil, as they may occasion the converging of two streams of people. It is, however, absolutely necessary to have some connection between one part of the house and another in order that the acting manager may pass from pit to circle, or from stalls to gallery, without having to go out into the street to the entrance of each part before he can reach his destination. In large theatres a manager's pass staircase is often built, but space is seldom available, so pass-doors have to be made on a staircase which goes from top to bottom, generally one of the private box staircases at the side of the house next to the proscenium wall. These pass-doors should always be kept locked, should never be used by the public and should have the word "Private" written on them.

It seems almost unnecessary to add that all exits should be of uniform width throughout, should not be "bottle necked" in shape, and should always be kept free from obstruction.

[To be continued.]



THE OPENING OF THE ST. CLAIR RIVER RAILWAY TUNNEL.—THE ELECTRIC-LIGHT ASSOCIATION'S CONVENTION.—RAPID CONVEYANCE OF THE MAILS FROM JAPAN TO ENGLAND.—THE SUMMER TRIP OF THE CANADIAN INSTITUTE.—THE MCGREEVY SCANDAL.—A STRIKE IN THE LUMBER TRADE.

THE event of the past month in engineering circles in Canada has been the opening of the St. Clair River Railway Tunnel, which was commenced in the spring of 1889. The St. Clair River is one of the links in the great watery chain of lakes, rivers and canals that connects the centre of the Dominion with the Atlantic Ocean. It runs out of Lake Huron at the southernmost point of that lake, and has formed a break in the Grand Trunk Railway system which has never been bridged. Trains arriving on either bank of the river were conveyed across it on boats. The object of the tunnel is to do away with this system of ferriage. A description of the tunnel was given in a former Canada letter.¹ The opening ceremony was made an international event. The Governor-General of Canada was represented by Sir John Ross, and the President of the United States by Consul-General Knapp, of Montreal. The tunnel was opened by Sir Henry Tyler, President of both the Grand Trunk Railway Company and the St. Clair Tunnel Company. Addresses of welcome were read by the Mayors of Port Huron and of Sarnia at their respective ends of the tunnel, and the officials and their guests passed through the tunnel in the "inaugural train." Bands and banners enlivened the proceedings, which wound up with a banquet and speeches by the dozen.

The National Electric Association's Convention in Montreal, whose proceedings commenced when I was sending off my last letter, has been a great success, and it is, perhaps, a little curious that a society whose work is of such a very technical nature should have created so great an interest as it did. The members of the Association will not easily forget the reception accorded to them in Montreal. Garden-parties were given by prominent citizens, and balls, drives, dinners and *conversations* were arranged for the entertainment of the members, which must have been pleasant relaxations after the somewhat dry and desperately technical character of the meetings.

Papers were read on the following subjects: "Central Stations operated by Water-power," by Mr. G. A. Redman; "Accounts of Central Stations," by Mr. J. J. Burleigh; "Three Years' Developments of Electric Railways," by Capt. Eugene Griffen; "Electric Railway Construction and Operation," by Mr. C. J. Field; and "A Central Station combining the Advantages of both Continuous and Alternating Current Systems," by Mr. H. Ward Leonard. Mr. Redman's paper gave rise to an animated discussion on the relative cost of steam and water power, the author contending in favor of water. Captain Griffen said that Cleveland, Ohio, was the first city to run electric-cars, and that was in the year 1888. Now there were 354 roads in operation, 2,893 miles in length, using 4,513 motor-cars.

The Committee on Safe Wiring presented their report, but there was no time to go into it. The object of the committee is to draw up rules for the Association, with the view of getting them made law throughout the States—a matter of great importance to

electric men, as the rules of insurance companies differ excessively one from another.

The Electric Exhibition was the most interesting exhibition ever held in Montreal, and certainly must have opened the eyes of the public as to the use of electricity as a motive power. The value of the exhibits was estimated at half a million dollars. The machinery was run by engines and generators set up in the McGill College grounds, a quarter of a mile distant, and was set in motion by the pressing of a button by the little daughter of Professor Bovey, the chairman of the Reception Committee.

At the banquet at the Windsor Hotel, which was to "put a climax" to the convention, the Governor-General, Lord Stanley of Preston, was present. In the course of the evening Professor Bovey was presented with a phonograph, handsomely mounted, by Mr. T. C. Martin of the *Electrical Engineer*, in which proceeding the Association sought to show in a substantial manner the appreciation it felt for the reception it had received.

During the stay of the Association in the city, the Canadian Pacific Railway Company offered the free use of its telegraph lines to the members for any messages they might like to send.

Another event of the month has been what we may, perhaps, call an engineering feat of a different character, the rapid conveyance of the mails from Japan to England across Canada and the Atlantic. The mail consisted of thirty-three sacks, and left Yokohama, Japan, at 8 A. M. on August 19th by the Canadian-Pacific steamer "*Empress of Japan*." The run across the Pacific occupied nine days, nineteen hours—a shorter time by many hours than has been taken by any previous vessel. At 8 P. M., August 29th, the mails were on board the special Canadian Pacific train at Vancouver. The train went across the continent at a rate of thirty-six miles an hour, including stoppages, one of which was of three hours' duration, resulting from overheating of axle-boxes. From Port Arthur to Brockville, on the St. Lawrence, the distance, 900 miles, was covered in twenty-two hours, Brockville was reached on Tuesday, September 1st, and here the mails were transferred from the Canadian Pacific to the New York Central Railway at Morristown, across the river. The train reached New York at 5.10 A. M., September 2d, and the mails put on board the Atlantic steamship, which had waited ten minutes to receive them. The vessel reached Queenstown in five days, twenty-two hours, fifty-three minutes. The mails were then sent on to Dublin by train, across the Channel by steamer to Holyhead, and thence to London, arriving there on the 9th of September, early in the morning, having occupied exactly twenty-one days in transit.

Members of the Canadian Institute have been taking their summer outing in the neighborhood of Penetanguishene, on the easternmost arm of the Georgian Bay (which, for the benefit of the uninformed in these matters, I will say, is one of our great inland lakes.)

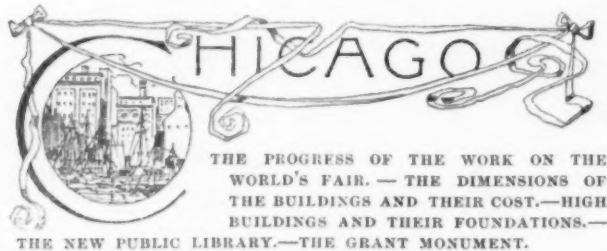
They were attracted to this place by the ruins of sundry forts on the River Wye, relics of Canadian history. Forts were established in this neighborhood in 1827, taking the place of a military station that had existed on Drummond Island at the time of its cession to the United States. A committee had been appointed to report on the Forts of Ste. Marie, on the River Wye, and Ste. Marie, on St. Joseph's Island in the Detroit River, with a view to their preservation: they brought in their report, which was adopted and a resolution was passed to the effect that steps should be taken to preserve these forts and that the proper authorities should be communicated with for this purpose. The whole neighborhood is particularly interesting, the scenery is very beautiful, especially at this season, when the woods are gorgeous with the autumn tints. Indians have their settlements on the islands, the largest of which is Christian Island. The members of the Institute paid a visit to this island and were met by the Chippewa Chiefs and a meeting was held in their council-house, some of the chiefs speaking in their own language and being translated by their interpreters. Two old Indians, "fathers" in the tribe, were present, one Thomas Skye, aged 97, who had seventeen children and four and forty grandchildren, and the other, John Monag, over eighty, who has seventy descendants. This old man made a speech in Indian which was translated by John Lake, another Indian, detailing the history of his tribe during his life-time. The Indian speakers were particularly fluent, self-possessed and dignified, and never were at a loss for a word, apparently, although as very few of their hearers understood what they were saying, any hesitation may not have been noticed. A paper was read by Mr. Osborne on the "Home of the Wyandots," and by Father Laboureau on the "Ecclesiastical History of Penetanguishene," which was especially interesting and shows that it is to the church records we must turn for the true history of native Canada.

In consequence of the McGreevy and other scandal investigations, this summer's session of the Dominion Parliament has been prolonged until it has taken the position of longest but one, since Confederation. Almost its last act, however, was the expulsion of Thomas McGreevy from the House of Commons. Sir Hector Langevin has resigned and his resignation has been accepted. These facts, with the dismissal of subordinates who were found guilty, brings to an end the scandal as far as the House is concerned and the Department of Public Works is purged. This does not affect the probable criminal prosecutions that may yet take place. His Excellency the Governor General gave assent in Her Majesty's name to some twenty-six new acts of Parliament, the last on the list being "an act respecting frauds upon Government," commonly known as the "anti-boodle law," which prohibits the acceptance by officers of Government of

¹ See *American Architect*, Vol. XXV, No. 699, page 236.

commissions or gifts and prescribes penalties for both the recipient and the giver. This is one of the results of the scandal investigations.

A serious strike of the men employed in the lumber mills at Ottawa and Hull (adjoining townships) has been in progress since the middle of September, and as time goes on it is feared it will be disastrous and far-reaching in its effects. At the beginning of the strike, the proceedings were of a riotous character, the strikers marched from mill to mill and forced the men working there to leave and the owners to close their mills. Three companies of volunteers or active militia were called out and stationed for one day in the neighborhood of the mills as a menace or warning to the strikers, but there was no collision. All work is at a standstill and there appears to be little chance of an agreement being reached for some time between the owners and the hands. A large number of men have left for other lumbering districts where it is stated men are needed. The owners say that to raise the wages at this time of the year and after a very quiet season is out of the question. Why the men should demand a rise now is difficult to say, as the milling season is nearly over. Lumbering is a hard life—the winter in the woods, cutting down trees, and the summer in the mills converting the logs into lumber—poorly paid at the best of times, and the men's cottages are of the smallest and poorest and always swarming with children (except when in warm weather the children are all sprawling on the sidewalks, when one has to be careful where one treads for fear of trampling on the babies). It is a hard struggle for the wives and children every winter, and the men by striking now are likely to bring dire distress upon their families in the coming season. When shall we have Boards of Arbitration and Conciliation which shall settle labor disputes without the ruin to trade and the misery to the homes of strikers, that these prolonged strikes entail?



IN general Chicagoans have no actual personal knowledge of how the work for the World's Fair is progressing at Jackson Park, and are almost as much prepared to have the *tout ensemble* break upon them in a state of completion as if they dwelt many miles farther from the field of operations than they do. Architects, however, are watching the operations with interest and everything is moving on at the brisklest possible rate, and appearances are that all will be in readiness by the appointed time. The site of the Fair, now surrounded by a high board fence, at present affords a perfect picture of chaos: railway tracks seem to lead everywhere, on which are cars loaded with lumber, iron beams and all the materials to be used in the construction of the buildings, and dredging-machines add to the confusion, while at their work of creating canals and lagoons. Nine hundred workmen up to this time have been constantly employed, and this month the number on the force is increased to two thousand, with the prospect of becoming still larger, numbering five thousand on its roll.

The chief work of dredging is completed, though three or four machines are still at work on the borders of the main lagoon and basin. Work is well underway on many of the buildings, and those now actually in progress of construction are given below. As a résumé we will give the price and dimensions of the different buildings in this list:

BUILDINGS.	DIMENSIONS.	COST.
Administration.....	260' x 260'.....	\$294,235
Agricultural.....	800' x 500'.....	463,635
Transportation.....	900' x 250'.....	
Transportation annex.....	9 acres.....	204,116
Horticultural.....	1,000' x 230'.....	226,800
Electrical.....	700' x 345'.....	291,535
Fisheries.....	363' x 163'.....	132,910
Mining.....	700' x 350'.....	229,115
Manufactures.....	1,688' x 748'.....	831,255
Women's.....	400' x 200'.....	97,745
Illinois State.....	450' x 160'.....	250,000

Though the cost and size of the different buildings have each been published at the time of the acceptance of the various plans, it may be of interest to see them collectively. The remainder of the buildings for which designs are entirely or nearly completed, but on which the work of construction is not commenced, are as follows:

BUILDINGS.	DIMENSIONS.	COST.
Machinery.....	850' x 500'.....	
Machinery annex.....	550' x 420'.....	\$1,000,000
Fine Arts.....	500' x 320'.....	500,000
Live Stock.....		350,000
Casino (price includes pier).....	300' x 175'.....	150,000
Forestry.....	500' x 200'.....	
Dairy.....	200' x 96'.....	
Saw-Mill.....	200' x 130'.....	25,000

Bids have already been taken on the United States Government Building and the contracts will be let for it by the time of the publication of this letter. For the Art Building, which it might be well to mention in passing is not to be on the Lake Front but in Jackson Park, the plans are entirely completed. This building is to be, of course, fireproof. For a long time there was a hard struggle to have it erected on the Lake Front, that after the Fair, Chicago might have at her disposal a fine Art Museum in near proximity to its Art Institute. The interest of the Fair rather than the interest of Chicago has prevailed and this month sees the only World's Fair Building ever erected on the Lake Front, a tool house, sold to the highest bidder. The structure most advanced at Jackson Park is the Women's Building, which would lead one to believe that the theory that women do not know how to keep an appointment must be a myth. The two stories of this building are completed and they are now being roofed over. In the Mining Building the floor is laid, frame-work is up, and roof-beams are being placed in position. The trusses of the Transportation Building are completed. The foundations are being worked on in the Electrical Building, Administration, Agricultural and Horticultural Buildings. The Manufactures' Building has its foundations finished and work commenced on the superstructure. On the Fisheries Building, and the one destined for the Illinois State, work is not so far along, but a good beginning has been made. The protecting pier for the naval exhibit is nearly completed and the large landing-pier is entirely so. The concrete and stone foundations of the battle-ship, which it was necessary to plant firmly on the bed of the Lake so as not to violate our treaty with England relative to war ships on the Lake, are finished and the main deck is being worked upon. It is intended to have a landing-pier on which will be situated the Casino, and plans for this are completed. From the Casino, the eighty-foot-wide pier will lead to the shore. The base dimensions of the structure have already been given in the list. It will consist of nine pavilions, two stories in height and with the exception of the central one, eighty feet above the surface of the water. The central pavilion will be one hundred and eighty feet high. Bridges will connect the nine pavilions, and a gallery fifty-six feet will surround the central one. Encircling the lagoon is to be an open space on which many of the buildings front. In this space are to be thirteen columns, surmounted by different figures, typifying the thirteen original States. The designs for them are under the supervision of Mr. St. Gaudens. There will be numerous other figures ornamenting the grounds and buildings, one of the best of which it is said, is the figure of Franklin, now nearly completed, fifteen feet high and destined to stand in front of the Electrical Building.

Of the open-air exhibits to be located in the Midway Plaisance, it is a little soon to find much accomplished, but in the place reserved for the Oriental exhibit the Turkish flag now floats alongside of the stars and stripes.

Thus, while looking over the grounds of the future Fair, if gifted with the prophetic eye, one can see rise out of the confusion the largest group of buildings ever seen at any similar exhibition. Designs for several of the State buildings have already been selected, and working-plans are being prepared. In most of the cases these drawings, as well as much of the material used, come from the State itself. In one or two instances, however, architects from outside these States have succeeded in having their designs accepted in preference to those of the local competitors.

As to the foreign buildings, as yet, little has been done, although they promise to be numerous. Great Britain and Germany have selected two of the most satisfactory locations on the grounds through their commissioners, and the English representatives have, outlined, in a general way, the character of the building, which will be that of a "manor house."

One striking feature of this exhibition will be the size of the buildings. They are so much greater than any heretofore of their kind that even the architects who designed them have expressed surprise when they see how very extensive is the space they cover.

For a bird's-eye view of this vast enterprise one can turn to the Fair in miniature at the old Exposition Building. In a space of about one hundred by fifty feet most of the principal buildings of the Fair, whose plans have already been accepted, are to be seen, and one is able to get a better view of the structures in their entirety than very likely will be possible on the exhibition grounds. The relative positions and sizes of the buildings are correct and the whole lay of the land is carefully imitated. Lake Michigan is indicated by a stretch of running water, being, in fact, a diminutive portion of the old lake introduced into the building. Jackson Park, Midway Plaisance, all, are represented by a clayey paste-like looking substance, painted green. Ground hemlock is used in the place of the symmetrical elm, and the whole settlement in the night scene is illuminated by the smallest-sized electric lights. When these shine across the turbulent lake, or are reflected in the quiet lagoon, or shine forth from the doors and windows of the miniature buildings, the effect is quite unique.

All through the summer there has been before the public the question, heretofore mentioned in these letters, of the advisability of continuing the high buildings, *ad infinitum*, with apparently no limit as to the number of stairs. The *Economist* of this city has had several articles bearing on this topic, and some especially interesting communications from Mr. Adler on the subject. He thinks that a future achievement will be to build, possibly, a forty-story building,

and that while a twenty-story building may be unsafe, there is no reason why it need be, if all the knowledge now at the command of the architect, which has been acquired by experience, is used.

One of the most important features upon which the safety of these high buildings depend, especially with our peculiar soil, is foundations, and Mr. Adler's letters chiefly are concerned with them, which, of course, with his large experience makes them especially interesting. To show what has been gained by experience, Mr. Adler gives a brief history of foundations here in our city, and in looking at the past endeavors to draw lessons for the future, not insinuating that all that is past is necessarily "outgrown." His letters are full of breadth of ideas and the spirit of toleration. In tracing the growth of foundations he begins with the old pile-foundations upon which rest the great grain-elevators. No other class of buildings have a more trying and shifting weight to sustain and still these foundations, so Mr. Adler maintains, have successfully carried them. Current opinion, however, has it that several of the elevators have settled, and that some of their tall chimneys lean perceptibly. Two buildings in this city which are the most glaring failures, the Court-House and the United States Government building, have this style of foundations, but Mr. Adler attributes the bad result not to the particular kind of foundation, but to the injudicious manner of using a good thing. He thinks the various kinds of foundations, timber and concrete, rail and concrete, timber, concrete, rail and I-beam have all been useful in their turn, but are none of them the final solution of the question of foundations when in the future still higher buildings are erected than those of the present, or when these mammoth structures are not isolated buildings, but when one large edifice is built adjoining others with their foundations requiring the same space of ground to rest on. Then it is, he thinks the question of settlement will come well to the front.

In the account of the development of the various systems, Mr. Adler treats of old-fashioned common rubble and dimension-stone foundations, its gradual change into iron and concrete and finally takes up the subject of piling, in connection with steel and concrete, clearly illustrating certain principles that have recently been employed in some of the heavier constructions either just completed or now going on. In this relation, Mr. Adler says:

"And now at last comes the re-introduction in connection with the tall modern building of the long-neglected and undervalued pile-foundation. The passenger-station of the Northern Pacific Railway on Harrison Street, is built entirely on a pile-foundation. The weights of some parts of the structure are enormous. The variations from great to small loads in the adjacent parts of the structure are frequent and quite remarkable. The triumphant solution of an extremely difficult problem was found in the use of piles carefully adjusted to the weight to be carried, in the determination of distance apart and length of the piles. As an instance of the remarkable success here attained, I will cite the corner tower which is carried on piles fifty feet long, each loaded with twenty-five tons, and carrying this load with absolutely no perceptible settlement. I am not at all prepared to say that even this is the last phase of development in the design of foundations for tall buildings. I have endeavored myself to go a step farther in the design of the foundations of the new German Theatre on Randolph Street. . . .

"Fifty-foot piles are being driven through this soft mud, until, as in the case of the Northern Pacific station, their points strike the tunnel clay. Here they are merely given a sufficient number of blows to make sure that the point has penetrated the hard clay. . . .

"The heads of these piles are cut off at a uniform level of about three feet below sewer-level or water-line, and are then covered with a grillage of oak timbers, running crosswise of each other, and both layers drift-bolted into the heads of the piles. Upon this is formed a foundation of concrete and I-beams, of which the outer parts act as cantilevers for carrying the parts of the new enclosing walls, which are erected in immediate contact with the old party-walls of the adjacent building. It will be noted that by this means there is obtained an unyielding substructure for the foundations. That, second, in the design of the foundations, there has been applied in combination every principle used in the most advanced buildings thus far erected in this city."

However, there may never be many chances in the future to test these various systems as to the most satisfactory foundation for carrying high buildings. There have been numerous reasons given in a preceding letter why these sixteen and twenty story edifices are not desirable. One objection, which seems a strong one, is the impossibility of knowing that such structures, when filled with inflammable material, are absolutely fireproof, and also the impossibility of rescuing people from any of the upper stories in case of such fire. In event of the building not being absolutely and actually fireproof, there arises the chance of the supports becoming heated in case of fire in the building itself, or an adjoining one, and, with the warping of these supports, the possibility of a sudden and dreadful collapse of the entire structure. To these objections have been added several warning notes from the doctors, till finally an ordinance has been introduced before the Council prohibiting the erection of a more than ten-story structure. It now remains to be seen whether this ordinance will be passed. The Public Service Committee of the Real Estate Board has met in conference with a committee from the Chicago Medical Society, and, as a result, drew up a recommendation to the City Council that it should take measures to restrict the height of buildings to one hundred and thirty-five feet, or ten stories.

So serious do some property-owners regard the possibility of this resolution becoming a law, that they are hastening to obtain preliminary plans for possible future sky-scrapers, and taking out building permits for the same, that, later, the value of property may be enhanced by the privilege being sold with it for erecting a structure outtopping the surrounding buildings by eight or ten stories.

The much-talked-of Chicago Public Library edifice seems to be growing from a state of dreamy possibility into a state of decided probability, and we have now reason to hope that before long we shall have a fitting housing for our valuable collection of books. For seven months, a civil engineer under the direction of the Library Board has been studying the interior requirements of the building, and the plans are now completed. These drawings are now to be turned over to certain architects—three Chicago firms, one New York and one Boston, each to be paid one thousand dollars for working them up into exterior designs. Other architects will be permitted to submit drawings, but without any assurance of remuneration.

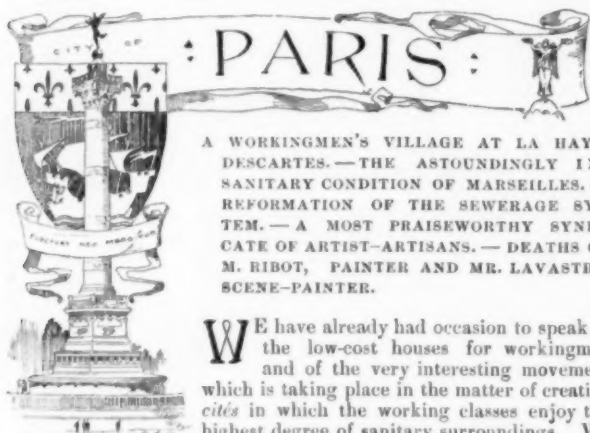
Notwithstanding Mr. Poole's former connection with this library previous to his acceptance of the position of the head of the Newberry Library, and the general favor with which his ideas have been met, here as elsewhere, with people conversant with the practical needs of a library, it is apparently definitely settled that the old stack-system will be the one used, and not the more advanced and rational method originating with this gentleman.

The building, which is to be Classic in style, with neither dome nor tower, will be four stories in height, of either granite or Bedford blue stone. By an agreement entered into with the abutting property-owners, it is arranged that the building-line shall be back fifteen feet on Randolph and Washington Streets and Dearborn Place, respectively. The Grand Army Hall and Memorial Association of Illinois will have dedicated to their use a space of 15,000 square feet on the second floor of the building for the purpose of a Memorial Hall. The Library will have two main entrances, one on Washington and the other on Randolph Street. The following is the detail of the general plan: A court 129 feet wide will open on Dearborn Place, and run the entire length of the four stories in a T-shape. The Michigan Avenue façade will present one continuous, unbroken front, without entrances. On the first floor will be a room for the preparing, receiving and sorting of books. In the second story will be the delivery and reception rooms for books, the main room being approached from the Washington Street entrance. The building will have a capacity for two million volumes. The above-mentioned Memorial Hall will be in the northeast corner of the building. Near to this will be the Assembly Hall, with a rotunda similar to that in Washington. The great reading-room is planned to be on the third floor, extending through the roof, which will be of glass. A good deal of the fourth floor will be used for offices and rooms of the managers. The plan provides for the possibility of future additions, which will afford considerable extra book-room, though it is not expected this will be needed for fifty years.

Chicago has at last unveiled her Grant Monument, having done so with all the splendor at her command. The United States troops from Fort Sheridan were summoned in for the occasion, the State militia came forward in all the grim paraphernalia of war, the old war veterans, the school-boys of various descriptions, postmen, policemen—every class of beings who could keep step and wear a uniform have assisted in lifting the veil from Mr. Rebisso's great work. Our powerful Lake navy, consisting of one vessel, made a fine showing, with the slight assistance of the Internal Revenue boats and all the large and small craft of our harbor, and probably the old "Michigan" discharged more powder from her guns than she has been guilty of using in many a long and peaceful day.

The Grant statue is situated at the eastern side of Lincoln Park, close to the great lake. There has been partially completed this year, outside of what was formerly known as the Lake Shore Drive, a road with water each side, the actual lake on the east, and a stretch of smooth water on the west. In passing, it might be mentioned that this drive is a most wonderful piece of masonry, stretching, as it will, for over a mile, with a stone esplanade on the side towards the lake, with a paved beach beyond sloping to the water's edge. It is from this walk and drive that the most comprehensive view of the monument may be obtained, and a slight feeling of disappointment is felt at the insignificance of the bronze compared with the stone work. Viewed still closer, from the old Lake Shore Drive, where the details of the substructure can be noted, the feeling of disappointment increases, and one is sure that the horse and rider lack that one kindling spark of genius that would lift them above mediocrity. However, upon mounting still nearer on the road that leads over part of the substructure, and obtaining a somewhat nearer view, one sees there is spirit and strength in the handling of both horse and rider that one would never guess at as viewing the work from below, and the feeling grows into certainty that Mr. Rebisso's bronze can take a place among the works of genius. The entire trouble is with the substructure, which is so enormous that it dwarfs the actual statue. The possibility of obtaining a comparatively near view of the work makes it undesirable that the handling should be of the broadest; but at the height that it is raised above the spectator at most points, only the strongest work would be effective. Add to this that the belly of the horse and the soles of General Grant's boots were not the parts of the statue, doubtless, that the sculptor wished brought into the greatest prominence, one can easily see that the effect of the work is lessened by

the great height of substructure. If one approaches the statue from the back-door, so to speak, up a gentle incline, where low trees cover the principal part of the granite-work, the fine effect of the horse and rider will immediately prove to the even careless observer how much the too extensive masonry detracts from the work of the sculptor, especially when the masonry be of such a crude and harsh character.



A WORKINGMEN'S VILLAGE AT LA HAYE-DESCARTES.—THE ASTOUNDINGLY INSANITARY CONDITION OF MARSEILLES.—REFORMATION OF THE SEWERAGE SYSTEM.—A MOST PRAISEWORTHY SYNDICATE OF ARTIST-ARTISANS.—DEATHS OF M. RIBOT, PAINTER AND MR. LAVASTRE, SCENE-PAINTER.

WE have already had occasion to speak of the low-cost houses for workingmen and of the very interesting movement which is taking place in the matter of creating *cités* in which the working classes enjoy the highest degree of sanitary surroundings. We find a new outcome of this movement not far from Tours at La Haye-Descartes, a little hamlet which a single large industry, paper-making, has transformed into a real city. The *Temps* gives some interesting particulars concerning this district, which would have remained quite unknown if Descartes had not been born there, and if a water-fall formed by the Creuse had not induced a paper-maker to establish there a mill which, under the direction of a member of the notable family of Montgolfier, has grown to be one of the most important paper-mills in the country. It is not our purpose here to describe the marvellous machinery in use, which is always kept well abreast of all modern improvements; on the contrary our interest lies with organization of labor and the pains expended in making the workmen happy and healthy.

The neighborhood could not provide accommodation for the workmen, so that it was found necessary to build a workingmen's village, which is a veritable model of its kind. This *cité* consists of two parts: one, the smaller of the two, is assigned to the upper employés, each of whom occupies a lodging in a two-storied house, which is divided into five apartments; on the ground-floor a vestibule and two rooms, two rooms on the first floor and another in the attic, there is, too, a cellar below. At the back is a garden 19.5 metres in length and 5.6 metres wide. These houses which are furnished to the employés free of charge, cost about 5,000 francs, or 87 francs per square metre.

The other portion devoted to the workingmen, consists of 160 houses which have only a ground-floor and an attic, the gardens being of about the same size as in the other part. Each house is so divided as to have a large room on the street and two smaller rooms on the garden. These houses cost 2,078 francs, or 41.5 francs per square metre. A laundry in common and an artesian water-supply makes cleanliness an easy matter.

The experiments have produced good fruit; the populace of La Haye-Descartes is happy, prosperous, and is not disturbed by agitations and strikes.

Here, then, is a simple village perfectly arranged for comfort and health, and one could not say as much for all the great cities; indeed the proceedings of the congress held at Marseilles, by the Association Française pour l'Avancement des Sciences discloses to us the wretched condition into which that important city has fallen, in the matter of healthfulness. But, according to the *Temps*, Marseilles is to reform and the author of the programme to be adopted, M. Cartier, read to the Congress a very interesting paper on the subject.

Marseilles is a striking instance of the ills that follow on the non-observance of the fundamental laws of public hygiene. If its geographical situation only be considered, the city should be one of the healthiest of maritime cities and yet the rate of mortality is very high—of late years it has been thirty-two to the thousand.

At present the rate of mortality is twenty-nine at Havre, at Brest and Bombay twenty-eight, at Lille twenty-five, at Lyons twenty-two, at Berlin twenty-four, at Brussels twenty-one, and at London eighteen. It should be noted that the Marseilles death-rate (thirty-two per thousand) is much exceeded in certain quarters which are in a worse hygienic condition than the others. This unhealthiness is due to quite exceptional causes: thus, according to official reports, there are 13,600 houses which have no form of water-closet apparatus whatever; 10,000 have dry chutes leading to iron cans in the cellar; 4,000 have cesspools and hardly a seventh with the can-receptacle provided with an imperfect form of filtering overflow. A great number of the poorer houses have not even a privy and, except in rare cases, the apparatus that does exist is simply a bowl with no means of flushing it and no ventilating tubes. For the purpose of seeming to obey the municipal regulations, the owner sometimes

places a tin can in the cellar, but he never causes it to be emptied, so that the tenants are, of course, unable to use it. There are also a certain number of privies in the court-yards or in the gardens, but vastly different from what might be imagined. These places are used in common by all the tenants of a building, who have no other place to go to. Almost always there are found close to these sources of pestilence wells, which are used, especially in the summer time, because the water is "so fresh."

The cesspools, usually placed under the sidewalk, receive all matter coming from the closets as well as all wastes from baths and sinks; they are provided with a grating which retains all solids but allows the fluid to escape into the nearest drains—private ones which wholly escape official examination and so are always in bad order. The system of sewers, although they receive a good share of sewage, is very incomplete, having been built under improper conditions of pitch and without provision for proper care-taking; sometimes whole sections do not discharge into anything. The collecting-sewers discharge their pestilential contents into the harbor near the Catalans and the beach of the Prado and other parts where are the favorite promenades or the largest bathing-establishments. These facts are drawn from the official reports, they are not the outpourings of a pessimistic spirit.

Fortunately all this is to be changed. The removal of the animal and vegetable offal was the most urgent task to accomplish. To this end combining the principle of "continuous circulation," which has become an axiom of sanitation, with the method which has long been successfully adopted in England, and which consists in opening the sewers to every form of matter that is susceptible of being floated through them. A solution has been sought for Marseilles in conformity with these data, and it is thought that such solution has been found in the adoption of the system of "everything to the sewer," with rapid evacuation of the water, without stop or stagnation, into the open sea.

A complete system of sewers is to be established, capable of receiving all household waste, and owners will be compelled to make the changes necessary in their buildings and adopt the proper fixtures. Over a surface of about 1,500 hectares which contain about 25,000 houses and 300,000 inhabitants the city will be divided into basins, the size and disposition of which will depend on topographical conditions. Under each street, alley and passageway will be a sewer or drain to receive the discharges from the abutting buildings. These sewers will be emptied rapidly by the aid of powerful force-pumps into secondary collectors built in the lower level of each basin, and these in turn will lead to the discharging-sewers.

Houses will be rendered healthy by the suppression of all forms of apparatus that are in the least defective, and by placing each building in direct connection with the sewer.

The total length of the sewers to be built in this city is about 180,000 metres, about half of which will be of glazed drain-pipe with diameters varying from 25 centimetres to 50 centimetres, the remainder being sewers proper, of varying shape and size. In addition to the new sewers, 58,000 metres of the present imperfect system will be repaired and 12,000 metres of discharging-sewer will be built; this will give the system a total length of about 250,000 metres.

Luckily Marseilles can undertake such important work as this without the misgivings and attendant difficulties which beset cities farther inland. The sea is here at hand to do its beneficent task, if only this discharge is made into some strong current of the open sea. It is now to be hoped that Marseilles will soon be able to extend to its inhabitants the protection afforded by observance of the elementary rules of sanitation.

At this time there is taking place all over France a singular movement in the formation of syndicates. Everybody is helping to form a syndicate—except the architects. Among the numerous syndicates which have been formed this year one deserves to be named because of the scale of its proposed operations and the object it hopes to achieve; it is the "Syndicat national des Ouvriers d'Art."

Better than any words of ours could declare, the first article of the constitution will show the spirit which animates the founders of this new syndicate, so different from that which leads to the formation of other workmen's societies: "Article 1. The syndicate has for its aim the maintenance of the superiority of the French name in industrial art; the propagation by every means of general education in the arts, and special professional instructions in every branch of art industries; the development of the well-being and social improvement of artist-artisans in every practicable form—insurance against sickness and lack of work, a retreat for the aged, etc. . . . in short, to assure to them an honorable existence not only during their time of usefulness but also in old age; finally, to harmonize, with the help of justice and equity, the different factors of the national fortune and by means of arbitration loyally accepted, to suppress all antagonism between employers and their workmen, which will enable all to have but a single preoccupation, namely, to keep France in the front rank in all that concerns industrial art."

This syndicate is composed of artist-artisans of every class: moulders, sculptors, furniture and cabinet makers, jewellers, weavers, piano-makers, decorators, etc., so that in Paris, alone, the association counts 40,000 members. To become a member one has only to be an artist-artisan, to pay an entrance-fee and a yearly due of one franc each, and in case of litigation to accept the award of the Council, and in all ways lend his aid to the development of industrial art.

The president is a working draughtsman and engraver, M. G. Bousenot. Every one ought to wish success and good luck to this new and novel syndicate, in the hope it will render the service it seems to promise.

It is, unhappily, necessary to close this letter with certain mournful tidings. The month of September, 1891, was a cruel one for art, for the painter Théodule Ribot and the decorative painter T. B. Lavastre both died. Born in 1823, Ribot made his first appearance at the Salon of 1861 with his "Little Cooks," which attracted the notice of Théophile Gautier. The Luxembourg has his "Saint Sebastian," so accurate in its anatomy, so pathetic in its indications of physical suffering. Ribot drew his inspiration from the work of the Spaniard Ribeira; he set off his flesh-tones against the somberest of backgrounds, accentuating in this way the modelling of his figures, which in this way took on the most astonishing relief; in his chiaroscuro he was astonishingly able. His early life was a hard one, for he tasted all the privations which could easily have shipwrecked a less robust personality.

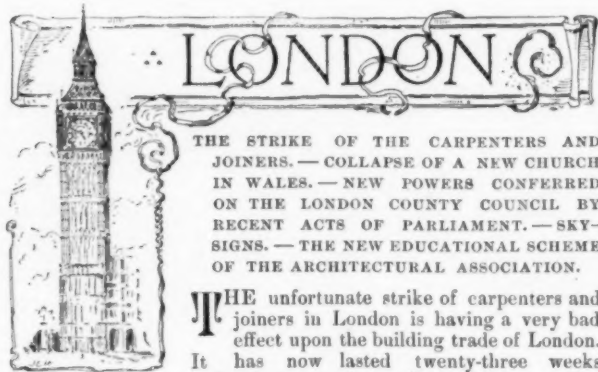
J. B. Lavastre was perhaps the best of our painter-decorators. Nothing can be more interesting than the series of his *maquettes* exhibited in the library of the Opéra. On examining them one obtains a glimpse of the labor and incessant research that are requisite for the practice of this laborious and poorly-paid profession.

Lavastre was endowed with unusual gifts and with indefatigable industry. He was the first decorator of the Opéra, which owes to him its most interesting scenes: the Palace of India, in the "Roi de Lahore"; the Memphis in "Aida"; the second act in the "Tribut de Zamora"; the fourth act of "Patrie" and the first act of "Sigurd."

With the help of Carpezat he made for the Opéra-Comique a magnificent scene for "La Nuit de Cléopâtre." The Comédie Française owes to him the settings for "Ruy-Blas," "Hamlet," "le Roi s'amuse" and "Thermidor." Later still "Lohengrin," which is at this very moment meeting with applause, was placed by him on the stage at the Opéra.

Besides these and many other meritorious works, to his hand are to be credited the decorations of the central dome and three smaller ones in the exhibition buildings in the Champs de Mars in 1889. It was he, too, who composed the decorations which so grandly enshrined at the Palais de l'Industrie the ode composed by Mme. Augusta Holmès, the same composition which, slightly modified, served for the grand fête de récompenses.

Born in 1834, Lavastre was 57 years old at his death.



THE STRIKE OF THE CARPENTERS AND JOINERS.—COLLAPSE OF A NEW CHURCH IN WALES.—NEW POWERS CONFERRED ON THE LONDON COUNTY COUNCIL BY RECENT ACTS OF PARLIAMENT.—SKY-SIGNS.—THE NEW EDUCATIONAL SCHEME OF THE ARCHITECTURAL ASSOCIATION.

THE unfortunate strike of carpenters and joiners in London is having a very bad effect upon the building trade of London. It has now lasted twenty-three weeks and shows no signs of termination. The strike originally arose upon the demand of the men to have their wages raised from 9d. to 10d. an hour, but the strike committee have deftly shifted the ground to a reduction of the hours of labor to eight. A demonstration of the men out on strike was held last Sunday in Hyde Park and about 20,000 men attended. Resolutions of the usual character were passed, and will have, I suppose, the usual effect. The consequence is, however, most annoying to London architects. Most contracts contain a strike clause which adjourns the date fixed for completing the contract by the number of weeks a strike continues. Consequently, we are between the devil and the deep sea. On the one hand the client is pressing for a completion of the work and threatening to transfer his commission if the building is not pushed on with; while on the other, the contractor expresses his inability to obtain men and does little or nothing.

The effect on the London building trade is disastrous. All over London can be seen naked gables and chimneys, carried up by themselves as far as it is at all safe, but there are no roofs. In the case of one large hotel on the Thames embankment, the roof was evidently half completed when the strike began, for it has remained in that condition for weeks and the timbers are beginning to look quite weather-worn. The Government and the County Council are holding back all their important works until the termination of the strike, and the glut of work that will probably come then will have as bad an effect as the lack of operatives now. The inevitable result, whatever may be the issue of the strike, will be the raising of all prices and the employment of foreign labor. Notice is now being circulated that a syndicate is in the course of formation for estab-

lishing workshops on the Continent. Such will be the effects of the short-sighted policy of the strikers.

It is not often that we have to deplore the total collapse of a new building; but such is the fate that has befallen the church at Barmouth, on the west coast of Wales. The work was won in a limited competition by Messrs. Douglas & Fordham, architects, of Chester, and the foundation was laid with unusual éclat by Princess Beatrice, during the late visit of the Queen to Wales. The church was built on a rocky limestone site, overlooking the estuary, and it appears that the foundation was considered unsafe at an early stage of the building. These difficulties were, however, surmounted at great expense by large concrete buttresses, and the building was proceeded with. Suddenly, however, at an early hour on Saturday, September 12, a lofty tower which formed part of the design collapsed and fell upon the nave with dire results. The explanation of the architects is that the catastrophe was caused by some blasting operations, which had been undertaken at the side of the church to obtain more light. I understand the damage will exceed \$25,000.

Among the restrictive legislative enactments of Parliament last session are three acts which confer new administrative powers on the County Council.

The first of these is the Public Health (London) Act, 1891. This act consolidates and amends a large number of old acts, repeals sixteen, and partially repeals nineteen others, and to all intents, applies to London the principles of the Public Health Act (1875), which has since that year been in active operation in England, with the exception of London. It contains a large number of Supervisory Sanitary provisions which include the summary dealing with such nuisances as foul closets, cesspools, drains, cisterns, water-courses and gutters; over-crowded houses; absence of water-fittings; cleansing of streets, paving-yards; removal of offensive matter through London; offensive businesses; construction and regulation of furnaces, of factories, gas-works; inspection of workshops and bakeries; registration and control of dairies, water-supply.

There are also several clauses concerning buildings in London. It is provided that newly-erected or rebuilt houses are to be provided with ash-pits properly constructed. A fine is imposed for any improper construction or repair of water-closet or drain which causes a nuisance. All occupied houses are to have a proper and sufficient supply. By-laws are to be made as to houses let in lodgings for the purpose of fixing the number of persons who may occupy a house or part of a house let in lodgings, for the registration of such houses, their inspection, drainage and ventilation.

Important regulations are also made governing the formation and construction of underground rooms. These are to be at least 7 feet high with three feet above surface of adjoining street, and various provisions follow, regulating the drainage, lighting, warming and ventilating of such rooms. This act is, as you see, a most comprehensive one, and will, if efficiently administered, do much to improve the health of London.

The second act is a shorter one. It is termed the Factories Workshop Act, 1891, and enacts that all factories in which more than forty persons are employed have to be furnished with a certificate from the sanitary authority (in London, the County Council), that the factory is provided on the stories above the ground-floor with such means of escape in case of fire, for the persons employed therein, as can reasonably be required under the circumstances of each case.

The third act is a curious one. It is termed the London Sky-signs Act, 1891, and is aimed against a singular form of advertising which the commercial pioneers of the last decade of the nineteenth century have thought fit to force on the people of London. It has been the custom here, wherever a favorable opportunity, to erect on the top of a high building, in a conspicuous position, a huge sort of trellis-work of iron, very fine, but tied and sheathed in all directions. On this trellis-work have been fixed gigantic letters advertising some particular commodity, so that the views along streets are finished by a piece of advice to buy somebody's soap or use somebody's pianos. Some of these signs are visible for miles around, and the increase in numbers rendered them most objectionable. It appears, however, that the wording of the act governs more than this. The act provides that all such signs within the metropolis must be removed under heavy penalties unless, on or before October 3, 1891, the owner applies in writing to the district surveyor for a survey and inspection of such sign, and a certificate of its safety. The district surveyor cannot grant a certificate unless the application be made to him within three months after the passing of the act, and no sign can be allowed to remain without such certificate has been obtained. The wording of the act seems to cover all sign-boards of public houses or other places of business which rest upon a cornice in front of a parapet or blocking-course. The County Council is bound to prosecute any offender under the act, and the work thus becomes serious, seeing the number of commercial premises in London which will be affected by it.

The Architectural Association have published the details of their new educational scheme, and it appears to have been very thoroughly considered and worked out.

The course of education is divided into four "years" and it is so arranged that the students take the Royal Institute of British Architects' preliminary examination on entrance, the intermediate after the second year, and the final at the end of the fourth year. The paid lecturers and instructors are eighteen in number, and there are

nine voluntary visitors in the studio. The professional status and reputation of the members of the teaching-staff are very high, and most of them have had considerable experience in teaching.

As this course is of a nature different from the collegiate courses in America on the one hand, and the French École des Beaux-Arts on the other, I append the heads of the curriculum in tabular form, giving the names and titles of the lecturers, the subjects, the allocation of time and the fees. This, it seems to me, will show more clearly the nature and extent of the course than any description that I can give.

CURRICULUM.

(NOTE.—It is presumed that the Student has passed the R. I. B. A. Preliminary Examinations.)
(The subjects required for the Institute Examinations are indicated by an asterisk.)

FIRST YEAR.

(Inclusive fee for the year = £10 10s.)

LECTURES AND CLASSES.

(Inclusive fee for lectures and classes = £5 5s.)

LECTURER.	LECTURES AND CLASSES.	NO. OF MEETINGS OF 1½ HOURS EACH.	FEE. £ s. d.
R. Elsey Smith, A. R. I. B. A., Greek Travelling Student, 1888.	*The Orders of Greek and Roman Architecture, their origin, development, and applications. The several varieties of Classic ornament.	16	2 2 0
F. R. Farrow, F. R. I. B. A., Holder Godwin Bursary, 1884.	*The nature of Ordinary Building Materials and the Elementary Principles of Construction.	16	1 11 6
H. Hancock, M. A., late Scholar and Triple Prizeman at St. John's College, Cambridge.	*Plane Geometry applied to actual work: Projection of Solids and Development of Surfaces.	6	1 1 0
R. Holmes, M. A., 5th Wrangler, 1885. First Class Honors, 1886, Cambridge.	*Elementary Physics as applicable to building (Mechanics).	4	10 6
H. Hancock, M. A.	The Rudiments of Perspective.	6	10 6
H. Hancock, M. A.	*Mensuration.	4	10 6
G. T. Moody, D. Sc. London, F. I. C., F. C. S., 1st Class Honors, Chemistry and Geology, London, etc.	Chemistry.	6	10 6
H. W. Burrows, A. R. I. B. A., Mem. de la Société Belge de Géologie.	Geology.	6	10 6

THE STUDIO.

(Inclusive fee for studio = £5 5s.)

INSTRUCTOR.	SUBJECT.	NO. OF EVENINGS OF 3 HOURS EACH.	FEE. £ s. d.
R. W. Schultz, Royal Academy Gold Medalist and Travelling Student, Student British School at Athens.	*Geometrical drawing of ancient examples. One example at least to be drawn from actual measurement. Freehand drawing. *Drawing of examples of Elementary construction. *Plane geometry applied to actual work and perspective. Meetings for criticism.	36 8 6 6 8	— — — — 1 1 0
Voluntary Visitors.	The Class for sketching and measuring will be held on Saturday afternoons.		2 6

SECOND YEAR.

(Inclusive fee for the year = £10 10s.)

LECTURES AND CLASSES.

(Inclusive fee for lectures and classes = £5 5s.)

LECTURER.	SUBJECT.	NO. OF MEETINGS OF 1½ HOURS EACH.	FEE. £ s. d.
F. R. Farrow, F. R. I. B. A.	*English Architecture from the Conquest to A. D. 1500, and the successive developments of the styles. The Characteristic mouldings and ornament of each period.	24	2 10
F. R. Farrow, F. R. I. B. A.	*The nature of Ordinary Building Materials and the Elementary Principles of Construction (Continued from 1st year).	12	1 1 0 1
R. Holmes, M. A.	*The Calculation of Strengths of Materials and Resistances from data and formulæ given.	8	1 1 0
Henry Adams, M. I. C. E., Lecturer on Land Surveying at the City of London College.	*Land Surveying and Levelling (Field lessons on Saturday afternoons).	6	—
F. R. Farrow, F. R. I. B. A.	Chemistry of Building Materials.	6	10 6
Cole A. Adams, F. R. I. B. A.	Elementary Ornament and Color Decoration.	6	10 6

*Students making use of this Class must have some knowledge of algebra.

THE STUDIO.

(Inclusive fee for the studio = £5 5s.)

INSTRUCTOR.	STUDIO.	NO. OF EVENINGS OF 3 HOURS EACH.	FEE. £ s. d.
R. W. Schultz.	*Drawings of ancient examples and Designs based upon them, one example at least to be drawn from actual measurement. Freehand drawing. *Drawings of examples of Elementary Construction. *Solid Geometry, Projection of Solids and Developments of Surfaces. Meetings for Criticism.	36 8 6 6 8	— — — — 1 1
Voluntary Visitors.	The Sketching and Measuring Class will be held on Saturday afternoons.	—	2 6

(NOTE.—The R. I. B. A. Intermediate Examination should be taken at this stage.)

THIRD YEAR.

(Inclusive fee for the year = £10 10s.)

LECTURES AND CLASSES.

(Inclusive fee for lectures and classes = £5 5s.)

LECTURER.	SUBJECT.	NO. OF MEETINGS OF 1½ HOURS EACH.	FEE. £ s. d.
F. R. Farrow, F. R. I. B. A.	*The History of Architecture, and Features, Mouldings, and Ornaments.	32	2 12 6
Robert Kerr, F. R. I. B. A., Emeritus Professor of the Arts of Construction, assisted by a Demonstrator.	*Materials, their nature and their application in building.	16	1 5 0
R. Holmes, M. A.	*The Strength of Materials: Stresses and Strains, their determination by formulae and graphic methods.	10	1 1 0
John Leaning, F. S. I., Author of "Quantity Surveying."	Specification Writing and Quantity Surveying.	16	1 1 0
E. Prioleau Warren.	Ornament and Color Decoration.	8	10 6
Maximilian Clarke, A. R. I. B. A.	*Sanitary Science as applied to Drainage and Water-supply.	6	10 6
G. T. Moody, D. Sc.	Elementary Natural Philosophy, including light, sound, heat, hydrostatics, and electricity.	8	10 6

THE STUDIO.

(Inclusive fee for the studio = £5 5s.)

INSTRUCTOR.	STUDIO.	NO. OF EVENINGS OF 3 HOURS EACH.	FEE. £ s. d.
J. A. Slater, Royal Academy, Silver Medalist and Sharpe Prizeman R. I. B. A.	*The Design and Construction of modern buildings. Freehand drawing from casts. *Perspective and Scio-graphy. Constructive Masonry. Meetings for criticism. Modelling.	33 8 6 3 8 6	— — — — 1 1 1 11 6
F. W. Pomeroy, Royal Academy Gold Medalist for Sculpture, 1885.	The Elementary Water-color Class will be held on Saturday afternoons.	12	2 2

FOURTH YEAR.

(Inclusive fee for the year = £10 10s.)

LECTURES AND CLASSES.

(Inclusive fee for lectures and classes = £5 5s.)

LECTURER.	LECTURES AND CLASSES.	NO. OF MEETINGS OF 1½ HOURS EACH.	FEE. £ s. d.
F. R. Farrow, F. R. I. B. A.	*The History of Architecture, and Features, Mouldings, and Ornaments (continued from 3d year).	32	2 12 6
Robert Kerr, F. R. I. B. A.	*Materials, their nature and their application in building (continued from 3d year).	16	1 5 0
F. R. Farrow, F. R. I. B. A.	*Sanitary Science, including water-supply, ventilation, lighting, and heating.	16	1 5 0
John Leaning, F. S. I.	*Measurement and Valuation of Buildings and Materials; Preparation of Estimates; the Legislative Enactments relating to Building Contracts.	6 4	10 6 10 6
Lacy W. Ridge, F. R. I. B. A.	Professional Practice.	14	2 6
T. Stirling Lee, Royal Academy Gold Medalist.	Discussion Section. Painting as allied to Architecture. Sculpture as allied to Architecture.	2	10 6
	Other Arts allied to Architecture.		

THE STUDIO.		NO. OF EVENINGS OF 3 HOURS EACH.	FEE. £ s. d.	
INSTRUCTOR.	SUBJECT.			
J. A. Slater.	*The Design and Construction of modern buildings.	28	—	—
	Freehand drawing from casts.	8	—	—
	*Drawings of ancient buildings from actual measurement.	8	—	—
	*Graphic statics and perspective.	6	—	—
F. W. Pomeroy, Royal Academy Gold Medalist for Sculpture, 1885.	Meetings for criticism.	8	1	1 0
	Modelling.	6	1	11 6
A. W. Weedon, R. I.	The Water-color Class will be held on the evenings named and on Saturday afternoons.	12	3	3 0

(NOTE.—The R. I. B. A. Final Examination should be taken at this stage.)

The detailed syllabuses of the various lectures and classes extend over more than forty closely-printed octavo pages.

The general system of the course may be said to be as follows:—

The student is introduced to his subject by means of a lecture lasting one hour and a half. After a few minutes' rest, the same subject is again taken up in the form of a class. In this class the lecturer tests the students upon the previous lectures, either collectively or individually, and in the way that seems to him most likely to bring out the student's knowledge. This completes what one may term the theoretical instruction, and the student, on subsequent days, works out practically in the studio his newly-learned theories. During the first two years, the work in the studio will to all intents and purposes be limited to drawing and measuring, but in the third and fourth years it will resemble a large office, where the student will be trained in design. It is, I understand, proposed not to treat designs purely as compositions, as in the French school, but to regard them as drawings for an actual building, and to work out each design completely with all the half-inches and full-sizes necessary for the execution of the building. This, it is thought, will serve to show the difficulties which are met with in actual work almost as well as if the work were carried out, and the fortnightly visits to works in progress will still further minimize the chances of students at the Association becoming "paper architects."

The introduction of this scheme naturally led to a considerable expenditure on the part of the Association, and, in view of this, an appeal for assistance was made to the profession. The result has been very satisfactory, nearly \$5,000 having been subscribed, besides \$500 having been given to form a reference library, and a valuable collection of casts having been presented.

The Architectural Association have this year visited Shrewsbury. Nearly all the houses in this district are timber-framed, and generally they are most picturesque in outline. A capital collection of photographs of the excursion was taken by Mr. Robinson, of Dublin, who accompanied the excursion, and they have been exhibited at the Royal Architectural Museum. The Society of Architects have visited Belgium.



[Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.]

HOUSE, NO. 125 TWENTY-SECOND STREET, PHILADELPHIA, PA.
MESSRS. G. W. & W. D. HEWITT, ARCHITECTS, PHILADELPHIA, PA.

[Gelatin Print issued with the Imperial and International Editions only.]

DROCHILL CASTLE, PEEBLES, SCOTLAND.

[Issued with the International and Imperial Editions only.]

CASTLE FRASER, ABERDEEN, SCOTLAND.¹

[Issued with the International and Imperial Editions only.]

"THIS building, the merits of which have heretofore been little known, stands in the parish of Cluny, in the heart of Aberdeenshire. Its details are so fully exhibited in the accompanying plates, that any description of them would be superfluous. It may be considered as standing in competition with Fyvie Castle for supremacy among the many French turreted mansions of the north. While its rival rests supreme in symmetrical compactness, Castle Fraser is conspicuous for the rich variety of its main features, and its long, rambling, irregular masses. Descending to minute details, while Fyvie is remarkable for its grotesque statuary, Castle Fraser has a more abundant richness of moulding and carved decoration. The quantity of tympanum'd dormer-windows, and the variety of decorations with which they are enriched, give much character and effect to the building. There is one small feature, taken from France, seldom exemplified in the turreted mansions of the north, yet of which there are a few specimens in edifices otherwise meagre—this is the light lofty turret, with an ogee or pavilion-shaped, instead of a conical, roof, and airy-looking tiers of small windows, perched in the recess where the round tower joins the central square

mass. Of that mass the upper will be seen to be of very different character from the lower architectural department, which probably was the unadorned square tower of the fifteenth century. The dates which appear on the more modern and ornamental portions point to the time when the turreted style had reached its highest development in Scotland, 1617 and 1618."

CASTLE FRASER, A DETAIL.

[Issued with the International and Imperial Editions only.]

CASTLE OF EDZELL, FORFAR, SCOTLAND.¹

[Issued with the International and Imperial Editions only.]

"IN the broad strath which approaches the foot of the northeastern chain of the Grampians stand the broken towers of Edzell, seeming as if they were the fortalice of the supreme lord over that wide fruitful district—as in truth they were, before the sway of the Lindsays had yielded to that of the Panmure family in the Mearns. The antiquary who consents to go so far out of beaten tracks, will be astonished and delighted with the remnants of ancient magnificence which have there been mouldering unnoticed. As in many other Scottish mansions, the oldest part, and the nucleus round which the other buildings have from time to time clustered, is the strong, square tower or barbican, which still remains virtually entire, while its gayer and more fragile parasites have been crumbling in decay. By the expansive and varied view still obtained from the bastions, one can see how well the Eagle-nest—Edzell was of old pronounced Eagle—was adapted to aid the power, and gratify the pride, of its owner."

FYVIE CASTLE, ABERDEEN, SCOTLAND.¹

[Issued with the International and Imperial Editions only.]

FYVIE CASTLE, ABERDEEN, SCOTLAND.¹ THE FRONT.

[Issued with the International and Imperial Editions only.]

THE description of the building was published in our issue of November 1, 1890.

NEW YOUNG MEN'S CHRISTIAN ASSOCIATION BUILDING, SAN FRANCISCO, CAL. MR. A. PAGE BROWN, ARCHITECT, SAN FRANCISCO, CAL.

This building is now in course of erection. The material of facade is light buff brick and terra-cotta, with stone first story. The cost will be \$220,000.

THE WALKER BUILDING, BOYLSTON STREET, BOSTON, MASS. MESSRS. WINSLOW & WETHERELL, ARCHITECTS, BOSTON, MASS.

COLONIAL COTTAGE. MR. CLARENCE R. WILLARD, ARCHITECT, BRIDGEPORT, CONN.

[Additional Illustrations in the International Edition.]

VILLA AT ROQUEBRUNE, (VAR) FRANCE. MR. M. H. SCHMIT, ARCHITECT.
[Photogravure.]

SIDE FACADE AND SECTION OF THE SAME.

[Photogravure.]

PLANS OF THE SAME.

THE drawings of this house here reproduced were exhibited at the last Salon.

BULLER'S WOOD, CHISLEHURST, ENG.: ENTRANCE FRONT, (TWO VIEWS). MR. ERNEST NEWTON, ARCHITECT.

DRAWING-ROOM IN SAME HOUSE.

STAIRCASE IN SAME HOUSE.

TRINITY U. P. CHURCH, POLLOCKSHIELDS, GLASGOW, SCOTLAND. MR. W. G. ROWAN, ARCHITECT, GLASGOW, SCOTLAND.

THE site of this church, which was opened a few weeks ago, is one of the finest on the south side of the Clyde, the ground being 15' to 20' above the road-level. The church is planned as nave and aisles, with a recess 20' deep and full width of nave, in which is placed the organ. The communion-table takes the centre position in the choir, in front the elders' and choir seats being ranged right and left, and the minister's chair at the table making a good screen for the organ-player. The whole of the fittings and furnishings of this part of the church are richly designed and carved in solid oak, and being lightly stained agree very well with the polished ashlar red stone lining the walls. In the windows above the organ there are some good bits of stained-glass. The nave arches are carried by Peterhead granite piers, with richly-carved stone capitals and moulded bases. The gallery-front, wall-linings, doors and their finishings, pews, etc., are all good examples of their kind, showing an amount of care and thoughtfulness in detail not by any means common in our everyday, moderately-priced church work. The pulpit and the font—the latter not yet finished, however—surpass

¹ It should always be kept in mind that these illustrations from the "Baronial and Ecclesiastical Antiquities of Scotland," [1845] by R. W. Billings, are republished very largely for the sake of giving instruction in one manner of the rendering of architectural drawings.

in richness of design and color, and in the rare skill and art-craftsmanship put forth by the carvers upon them, all the other fittings with which the church has been so handsomely gifted. Built of Corsehill red sandstone, with green marble shaftings in the upper and lower stages, the panels of the upper stage are filled with beautiful examples of onyx finely marked in colors, and so transparent in parts that light could be seen through about a thickness of an inch where only one face was polished. The coping is wrought in richly-colored alabaster with a good effect of transparency in it, and selected for its soundness as well as color. The varying tones and colors of the marble, alabaster and onyx have a rich setting in the red sandstone cusped and carved traceries of the canopied work which surrounds and partly encloses them, apart from the foliated string-courses and crocketed terminals of the inner shafts of the lower stage. The book-rest is of black hammered-iron, richly wrought with well modelled work of a vine-leaf pattern. The massive high-backed and gabled chair is wrought in solid oak, ornamented with cusped traceries and richly carved. Altogether this church may fairly mark a step in advance in the treatment of the interiors of United Presbyterian churches at any rate, and it is creditable to the taste and liberality of those in authority that this is so, and that the architect was practically allowed a free hand in the arrangement of what must be regarded by many as a novel and artistic interior. The gas-fittings, of black hammered-iron, are wrought mostly as pendants but with a few wall brackets.



[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.]

SCREENING CASEMENT-WINDOWS.

BOSTON, MASS., October 14, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Will you, or some of your readers, kindly suggest some simple way of forming a mosquito-screen to casement-windows hinged at the side to open outward, and oblige?

Yours truly, B.

[The only way of arranging screens to such windows, so far as we know, is to hang them like doors to the inside of the frame, opening inward.—EDS. AMERICAN ARCHITECT.]

PORTRAITURE IN ARCHITECTURAL CARVING.

HARTFORD, CONN., October 14, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—In response to your public invitation I beg to say that the panels on the historical frieze of the Garfield Memorial contain several life-size portraits of famous Americans, including General Garfield, Chief-Justice Waite, General Sherman, Ex-president Hayes, Arthur, Logan, Carl Schurz, Blaine, Senator Sherman, General Thomas and several others.

The sculptor has also introduced himself, and the architect and the sculptor's assistant, besides the foreman of the plaster-casters of the Perth Amboy Terra-Cotta Works. On the interior in the mosaic frieze, the artist has introduced a portrait of the architect's infant daughter.

These are all introduced unobtrusively. Of course you are aware of what Wendell Phillips called the Boston Soldiers' Monument. A monument to the Milmore family, on account of the portraits of his relations.

Very truly yours,

GEORGE KELLER.

P. S.—On the North Baptist Church in this city, I was reminded of two portraits cut on corbels or bosses at the spring of a label mold. They are portraits of the chairman of the building-committee and of the stone-carver. The likenesses were not discovered until the heads were quite finished. I mean, the chairman did not know he was being done in stone.

G. K.

[MONUMENTS are hardly cases in point, as a sculptor who had groups of figures to execute would naturally make some of the faces portraits. The church, however, is exactly what we mean, and we should be glad to know the name of the carver who cut the bosses, as well as, in general, the names of any other carvers who had done similar work on buildings, either at the architect's suggestion, or of their own motion. This ought to be encouraged, and architects ought to know where to lay their hands on such men. Perhaps the church committee-men did not feel flattered at their likenesses, but, fifty years from now, their descendants will take great pride in them.—EDS. AMERICAN ARCHITECT.]

WANTED: A MOTTO.

MONTREAL, CAN., October 19, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—We should be glad if you or any of your readers could favor us with suggestions for a motto or inscription suitable for cutting in stone upon the frieze of a building for engineering, electrical and technical educational purposes, say about one hundred letters, more or less, and much oblige.

Yours truly,

G. G.

NOTES AND CLIPPINGS.

WYOMING'S BIG GLACIERS.—Wyoming boasts two glaciers equal in surroundings and beaten only in extent by the famous icy formations of the Old World. The first is found in the ascent of the highest of the three Teton Mountains just outside the National Park in Fremont County. It was discovered but a few days ago by W. O. Owen, a civil engineer visiting that section for pleasure. It is of smooth surface except for a few great seams. The second glacier is reported by G. W. Johnson, a Government geological surveyor, whose investigations have been cut short by an order taking him to California. This Rocky Mountain freak is on Cloud Peak, forty miles from the Town of Buffalo. At one point on the ice field Johnson looked down a sheer 1,200 feet. A basin filled by seepage gives this glacier a lake attachment and Johnson says the water was under three inches of ice on the 27th of last month.—N. Y. Times.

A LARGE HOT-WATER BATH AT WACO, TEX.—Waco, Tex., has an immense bath-house that draws its water from an artesian well 1,870 feet deep. In the pool, that holds 80,000 gallons and is refilled every two hours, the people of both sexes disport themselves in bathing costumes. The floor slopes from a depth of two to a depth of twelve feet, so that children are able to splash in the water at one end of the pool while expert swimmers take a plunge at the other. The flow of water from the well is a million gallons a day, and it has a natural temperature of 112° Fahrenheit. In addition to the natatorium there are the usual hot and cold private baths. The water used is said to be of volcanic origin, and the Waco "boomers" are already predicting that their city will become a second Hot Springs.—N. Y. Evening Post.

TRADE SURVEYS.

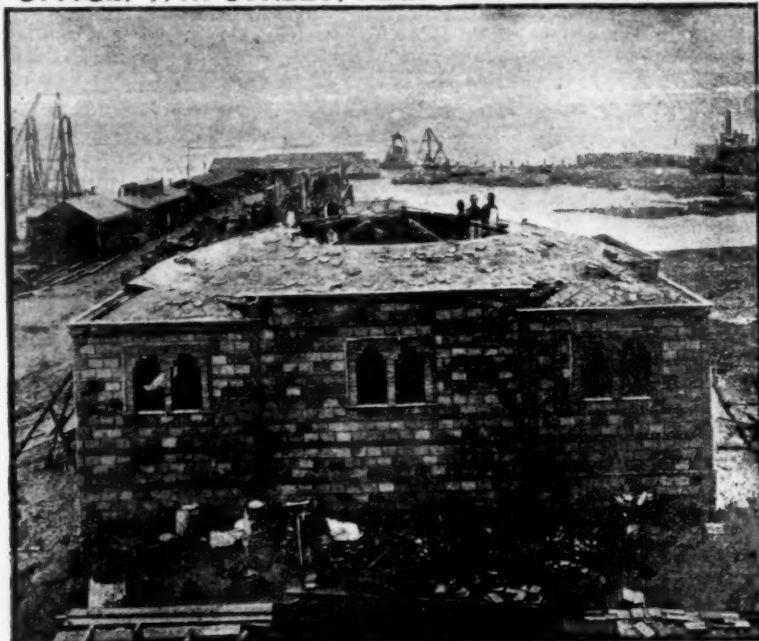
THE fact that the net earnings of railroads throughout the country for the year average five per cent increase over same time last year, with almost booming prospects for an increase of traffic and earnings, is really the basis for the present strong tone of the financial, commercial and manufacturing markets. The excess of a thousand million bushels of cereals over last year is the fundamental fact upon which so many brilliant anticipations are placed. What manufacturing and financial promoters and managers ardently desire just now is the fixing of a national, economic and financial policy which will enable them to take advantage in the near future of the present favorable trade conditions. They are confronted by threats of politicians to introduce unsettled topics, involving tariff revisions and radical financial measures. As a rule, however, business men discount what politicians may do, but in this instance there is a real danger threatened. The facts in regard to the financial situation can be easily summarized. The interior shipments last week were four millions, gold imports nearly nine millions, net gain to banks in New York four and one-half millions. Loans are being made liberally. There is an abundant stock of gold in Europe from which to draw. Export figures are also favorable; they show a steady and rapid gain over the corresponding weeks and months of last year. Our exportable surplus of wheat is nearly three hundred million bushels. In manufacturing circles, similarly favorable reports continue to be received from nearly all centres East, West and South. It must be kept in mind that there is no rush or booming demand anywhere. Seeds are not being sown for a revolution in trade. We are now witnessing one of the benefits of the trade organization that has been in progress for some years past. The result was not that which was intended: namely, higher prices and a stronger grip on production and distribution. The real advantage which has come is an automatic, so to speak, control, by which the interests of consumers at large are protected against fluctuations up or down. There is very little probability of any upward movement in prices, because of the fact that fundamental conditions forbid, such as an extraordinary producing-capacity, multiplication of sources of supply, equalized railway rates, an abundance of fuel supplies at convenient points, and the development of little manufacturing industries everywhere. There are some other minor influences at work, all tending to serve the interests of consumers in the long run against the possible evils of combination and monopoly. The student, in carefully observing these agencies, can but notice that, without any preconceived purpose, agencies are being organized which will render it more and more difficult for centralizing tendencies to perpetuate harm or wrong in an organized way upon the community. State legislatures have done remarkably well in protecting public interests. Many mistakes have been made, but, when we come to study what has been done, it is a matter of surprise, considering the amount of denunciation expended on unfaithful public servants, that so much genuine and lasting good to the public interests has been accomplished or made possible. Another favorable indication deserving of notice is the encouragement recently given to investments of capital in the farther West. During our winter yet has as much mortgage indebtedness been paid as this. More mining properties have been prospected and more new mining enterprises are now being promoted than during any one year of our history. Land in most sections of the West is improving in value in a legitimate way, and it is this fact, perhaps, more than any other that stimulates legitimate investments. Notwithstanding we have built fewer lines of railroads this year than for ten years, there are, numerically, a greater number of enterprises under consideration than there have been since the Pacific roads were completed. Of course, the bulk of these roads are short, but their multitude clearly shows that we are on the eve of an industrial and agricultural development that means more for the prosperity of the country than even the building of those Pacific roads. The month of October has developed quite a number of strong features, which business men will soon profit by. That there will be a heavier general demand is anticipated on all sides; that a slight hardening of prices will take place is admitted; that a great number of new industrial enterprises will be prosecuted this winter is clear; that money will be sufficiently abundant to further the bulk of these enterprises is also patent. The latest reports from the coal trade throughout the country shows an enormous tonnage, in spite of drawbacks in other directions. The saw-mill interests of the West and Southwest are preparing to load up with a larger stock of lumber than last year, by way of anticipating the improving requirements from the West and Northwest, particularly. The projection of new ship-lines at various points is to be favorably noted. American capital will hereafter give some attention to the possibilities of building up trade with the outside world. Railroad-building will not altogether monopolize American energy. In the next few years, it will be safe to say that a score of ship-lines will be established between American, North American, and Central and South American points.

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Buildings in which the GUASTAVINO FIREPROOF CONSTRUCTION COMPANY
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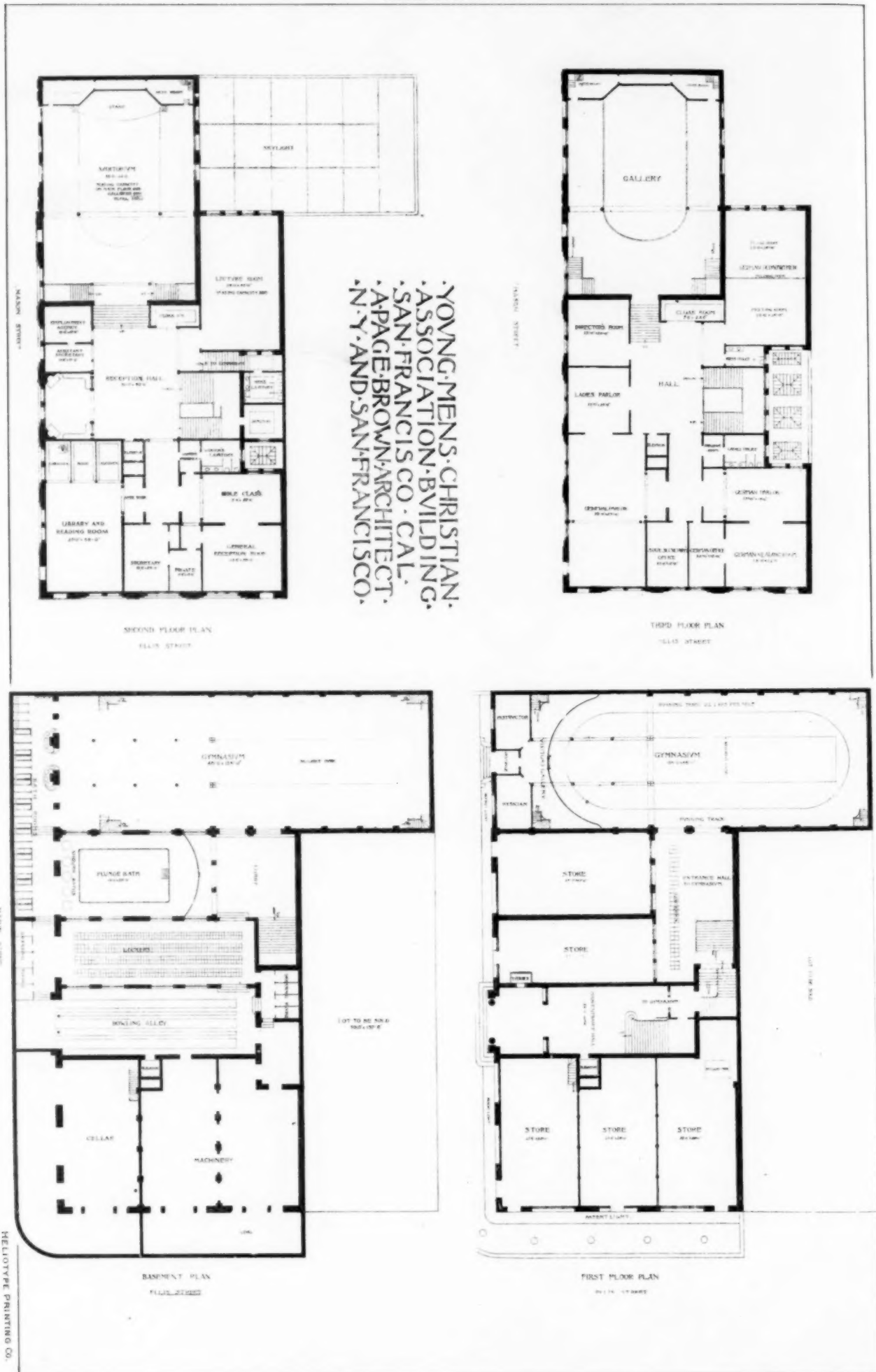
AMONG THE LARGER CONTRACTS COMPLETED ARE THE FOLLOWING:

Music Hall	-	-	-	-	-	New York, N. Y.	Manhattan Brass Foundry	-	-	-	New York, N. Y.
Arion Club	-	-	-	-	-	"	LaConcha Baths	-	-	-	Syracuse, N. Y.
Plaza Hotel	-	-	-	-	-	"	Atlantic Brewery	-	-	-	Staten Island.
Lion Brewery	-	-	-	-	-	"	W. Fellows's Residence	-	-	-	Montclair, N. J.
Corbin Building	-	-	-	-	-	"	Matthiessen Vaults	-	-	-	Woodlawn, N. Y.
Sidenberg Building	-	-	-	-	-	"	Morgan Stables	-	-	-	Newport, R. I.
Mt. Sinai Hospital	-	-	-	-	-	"	Exeter Chambers	-	-	-	Boston, Mass.
Edison Electric Illuminating Company,							Cox Stable	-	-	-	"
26th St. Station	-	-	-	-	-	"	Bay State Gas Company Building	-	-	-	"
39th St.	-	-	-	-	-	"	Colorado Telephone Co's Building	-	-	-	Denver, Colo.
Sun Fire Company Building	-	-	-	-	-	"	Dover City Hall	-	-	-	Dover, N. H.
Lyons Building, Bleecker Street	-	-	-	-	-	"	Philadelphia Market	-	-	-	Philadelphia, Pa.

AMONG THE CONTRACTS NOW ON HAND ARE THE FOLLOWING:

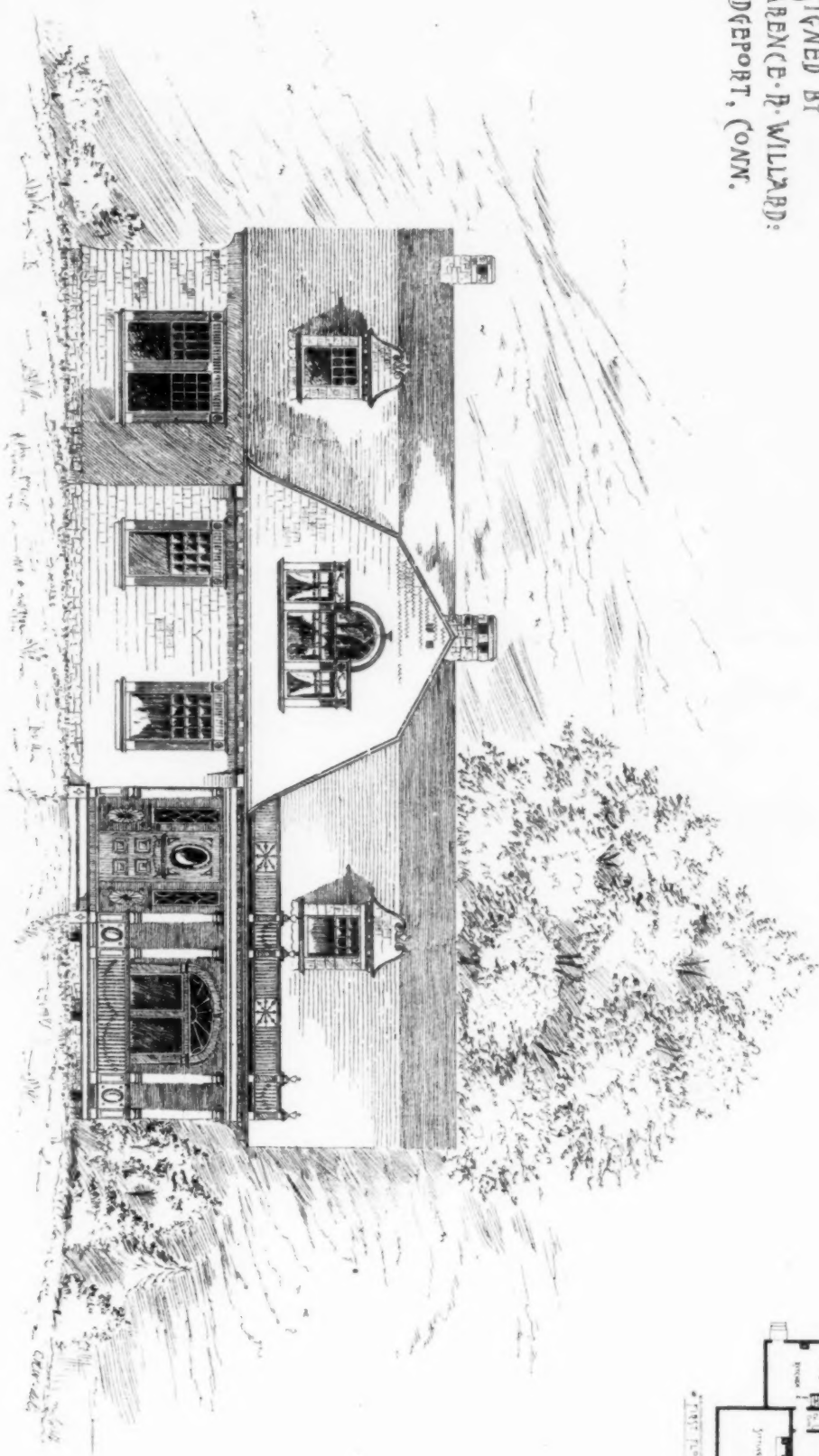
Havemeyer Building	-	-	-	-	-	New York, N. Y.
Howard & Childs Brewery	-	-	-	-	-	"
Arcade of Madison Square Garden	-	-	-	-	-	"
Edison Electric Illuminating Company,						
Cor. Elm and Pearl Sts.	-	-	-	-	-	"
Paterson Savings Bank	-	-	-	-	-	Paterson, N. J.
Lowell Library	-	-	-	-	-	Lowell, Mass.
Boston Library	-	-	-	-	-	Boston, "
Massachusetts State House Extension	-	-	-	-	-	"
American Legion of Honor	-	-	-	-	-	"
Boston Gas Light Company Building	-	-	-	-	-	"
Hitchcock Hospital	-	-	-	-	-	Hanover, N. H.
Ansonia Library	-	-	-	-	-	Ansonia, Conn.

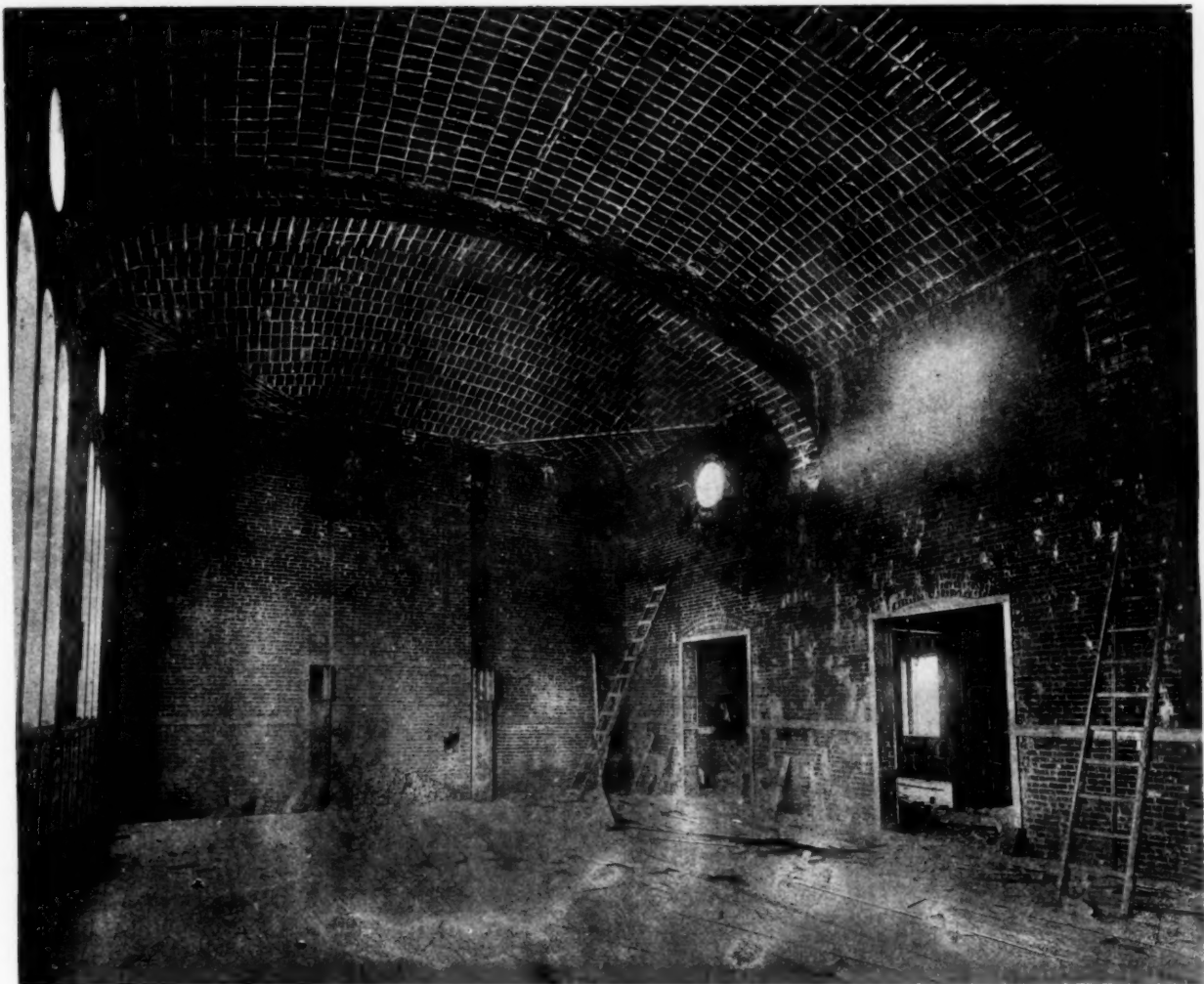
This Company gives Estimates and takes Contracts for Fireproof Buildings, Floors, Ceilings, Partitions
and Staircases, under the System called, GUASTAVINO TILE ARCH SYSTEM.



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DOME 50' x 32'

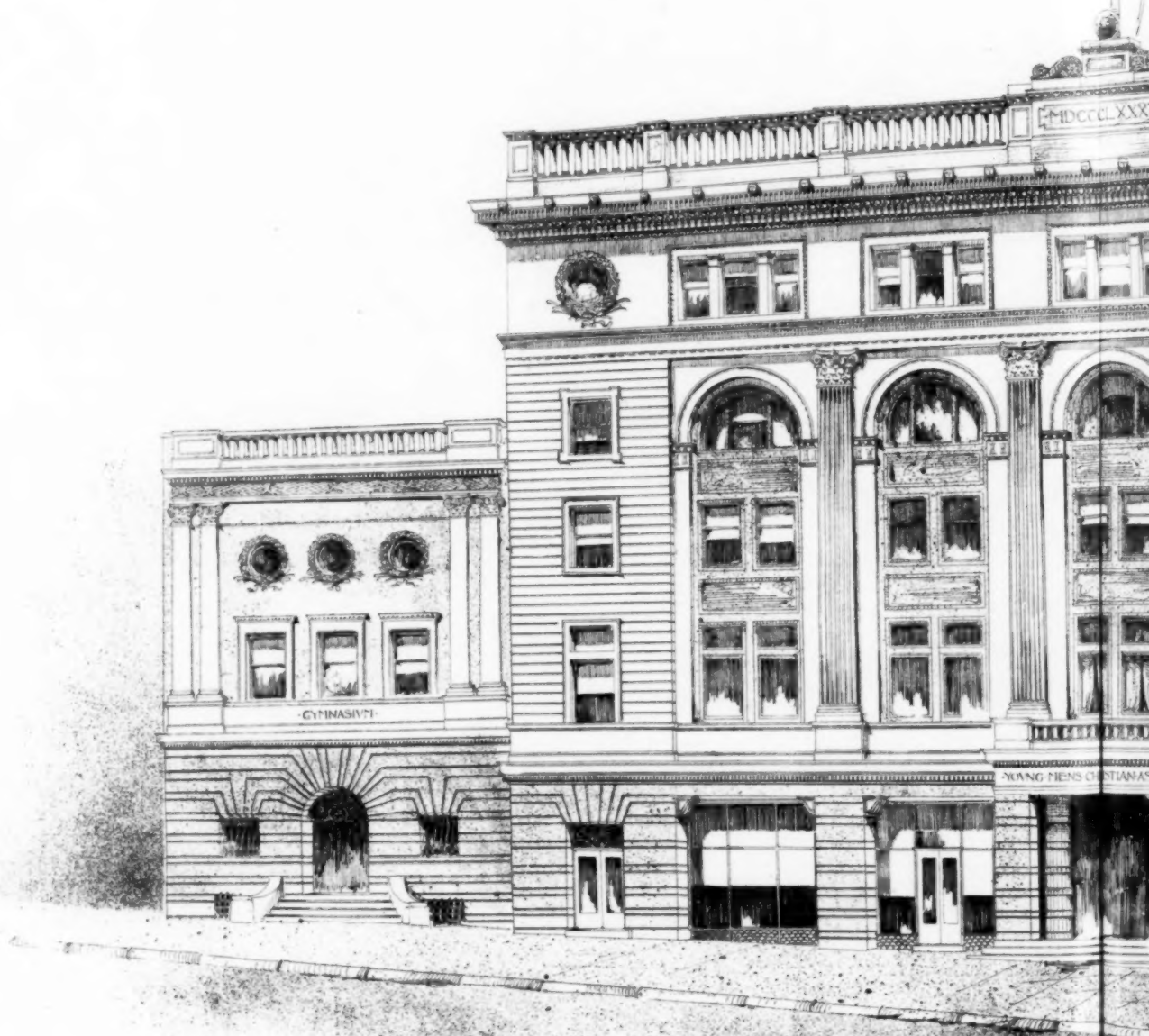
"MAIN HALL" AMERICAN LEGION OF HONOR BUILDING
BOSTON MASS.

ROTCH & TILDEN ARCHITECTS.

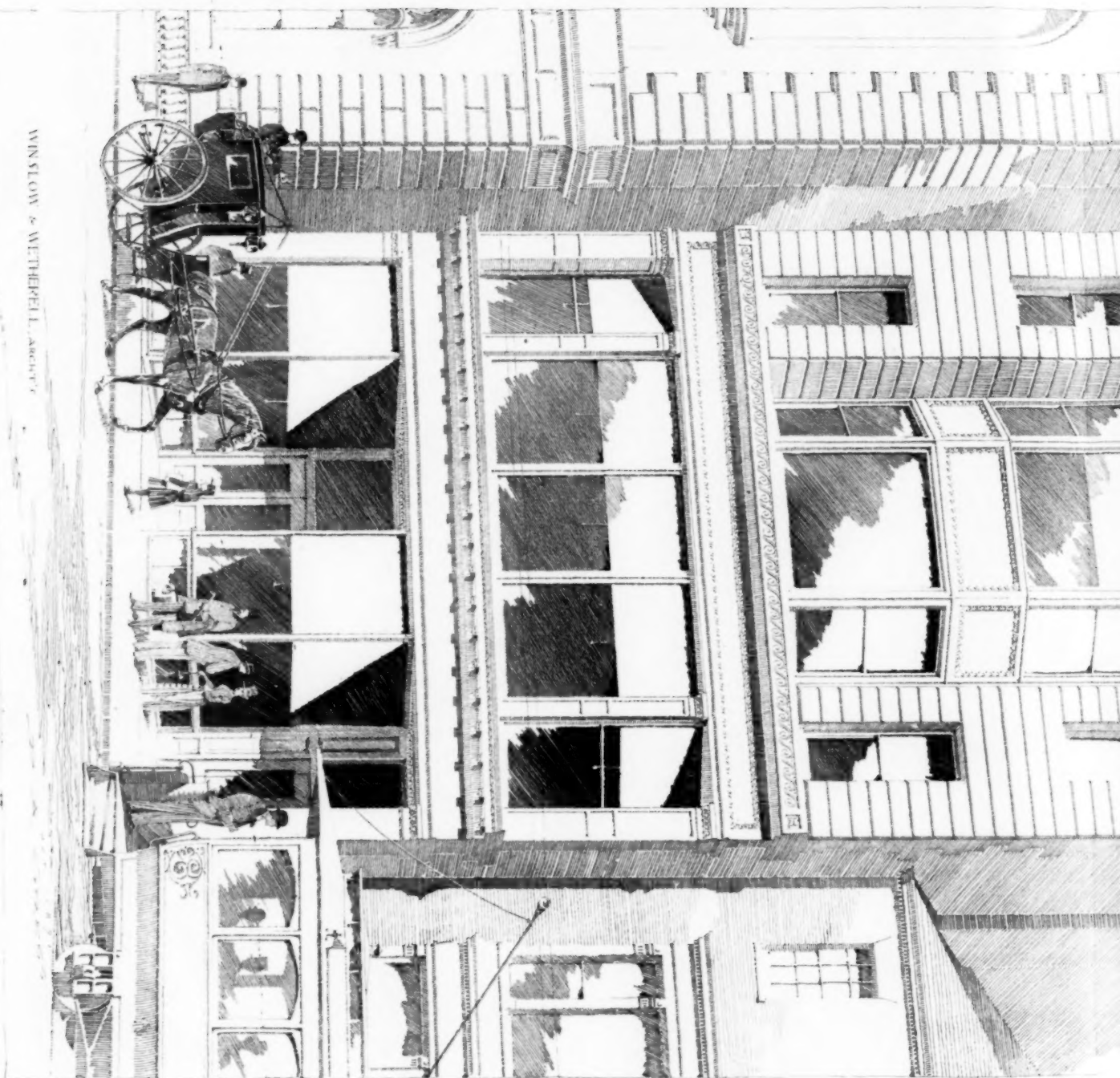
Guastavino Fireproof Construction Co.

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