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IT must be confessed that the results of the interview between the President, Mr. Mitchell and the coal operators do not cast much credit upon the intelligence of the operators. It was presumed by the public, and, probably, by Mr. Roosevelt, that the operators, after hearing what Mr. Mitchell had to say, would present a reply to his proposals. Instead of this, there is, practically, no evidence that they even listened to what he said, much less gave it any rational consideration. If, instead of composing rambling denunciations of anarchy in general, and extolling their own virtue in standing up for the principle of freedom of labor, they had attended to Mr. Mitchell's words, they would have seen that he was making them and the country a straightforward and unequivocal offer of everything that they represent themselves as contending for, in his proposition to leave all the points at issue to the President, or to commissioners appointed by him, the award to be binding on all parties. The operators say that they are fighting for the right of non-union men to work in the mines without molestation. It is inconceivable that the President, or any commissioners appointed by him, would deny that right, so that an acceptance of Mr. Mitchell's offer would at once have accomplished the object for which, as the operators say, they are sacrificing themselves and other people. The only other points, apparently, which would come before the commissioners would be those relating to wages and "improved environment," and it is safe to say that neither President Roosevelt nor any commissioners of his choosing would be unreasonable in regard to them. The lying, in regard to these matters, is at present something frightful, the miners declaring that they are compelled to live in abject misery, on incomes of forty or fifty dollars a month, while the operators affirm that the average miner earns about three dollars and a half in five hours of every day, and invests his surplus income in real-estate and savings-bank deposits; but any commission with common-sense would soon ascertain the facts, and if it found that undeserved misery really existed, and could be cured by a reasonable increase of wages, the whole American people would approve an award providing for such increase.

THE trouble about coming to an agreement seems to have been that the operators present at the meeting were so blinded by their private prejudices that they could not even see their own interest, much less that of their men and the public. The idea of combining all the anthracite miners into one organization, which appears to the public quite as legitimate as a combination of the operators, seemed to work on their feelings as the shaking of a red rag does on those of a bull; while their grief and despair on account of the violent acts committed by the striking miners, which Mr. Mitchell probably deprecates as much as they do, prevented them, apparently, from listening to a proposition which would immediately put a stop to such violent acts, without endangering any of the objects which they profess to cherish. If we imagine Grant, at Appomattox, driving off the messengers who brought him Lee's flag of truce on the ground that his "principles" would not allow him to have anything to do with a representative of secession, or to enter into any negotiations so long as "violence" continued in the South; and that, rather than accept the sword of such an odious person, he would continue fighting until the last man on both sides had fallen, we shall have a good illustration of the attitude which the operators seem to have thought fit to assume before the President and the public. It is not difficult to imagine what military fate would await a general who carried on negotiations in this spirit; and it is possible that the stockholders of the coal roads, which are now not earning their operating expenses, may solve the great problem by putting in charge of their property men who can comprehend an opportunity when it is offered them.

IT is one of the weaknesses of trusts, a weakness which has already proved fatal to some, and is likely to bring about the ruin, or, at least, the dissolution, of many others, that they almost completely eliminate the personal initiative, and the quick decision in taking advantage of favorable circumstances, on which business success depends. A single operator, trained to foresee the consequences of every movement affecting his business, responsible only to himself, and enjoying full authority to decide all questions as he may see fit, without explaining his reasons to anybody, would, if of ordinary intelligence, have closed with Mr. Mitchell's proposition on the spot; but with a number of officials, of equal authority, and bound by agreement to act together, the sense of responsibility in each is so slight, and the difficulty of getting them all to comprehend any proposed action is so great, that anything like a rapid act of intelligence is not to be expected from them; and, unless they act simply as unquestioning instruments in the hand of some one person of preëminent ability, which very rarely happens, they soon fall into the habit of dull obstructiveness which is so marked a characteristic of trust administration, and which was so strikingly displayed at the Roosevelt interview. Ultimately, this sort of management generally comes to grief, in business matters, before the competition of individual alertness and decision; but neither the public nor the stockholders in the coal roads can wait until circumstances have taught their officials to reply to an advantageous business proposition by something else than discourses on their services in the Civil War, and the sooner the people who own the property which is being sacrificed take the control of it, the better it will be for everybody.

THE engineering world, which, in Germany, includes the architectural world, laments the death of James Hobrecht, one of the most famous of modern engineers, and the author of the Berlin sewerage system, in many respects the best ever devised for a great city. More than forty years ago, the municipal government of Berlin sent an engineer Commissioner to England and France, to study the most improved drainage systems of inland cities, with a view to their application to the needs of Berlin, and with this Commissioner was sent James Hobrecht, then a young architect, as assistant. Hobrecht was a skilful draughtsman, and his sketches served, after the return of the party, to illustrate the report of the Commissioner on the "Drainage of Berlin." The Commissioner, Wiebe, was, as a result of his investigations, charged with the preparation of a plan for the sewerage of the city; and, according to the practice then in vogue, he drew up a scheme by which the little river Spree was made to receive all the drainage of what, even then, was a city of five hundred and fifty thousand inhabitants. Hobrecht, more far-seeing, appreciated the difficulties which would result from loading a little fresh-water stream, far from the sea, with the sewage of a great and growing city, and made up his mind that the only successful method of disposal must be sought in some form of irrigation, for which the flat, sandy plain surrounding the city afforded certain advantages.

Although Milan and Edinburgh had practised sewage irrigation on a small scale for some years, no great city had yet attempted it; and all Hobrecht's enthusiasm and force of character were required to persuade the Berlin authorities of its practicability. The plan of Wiebe, for pouring a flood of sewage into the Spree, was, however, set aside in the meanwhile, and it was finally decided to adopt, in general, the project that Hobrecht advocated. Fortunately, this project was a comprehensive one, and, although Berlin has now nearly two million inhabitants, and certain details of the system have been modified in extending it, the irrigation-fields still dispose of the drainage satisfactorily. At this time, when nearly every great city in Europe has adopted the irrigation system, it is hard to realize the difficulties under which the young German architect labored in bringing the municipal authorities, as well as the people of the city, to the comprehension and appreciation of his views. Fortunately, he was endowed by nature with great courage and perseverance, and he enjoyed, in addition, that confidence and support of his fellow engineers and architects which is so precious to the professional man, and which the German architects and engineers bestow upon each other so generously and intelligently. The architects, in particular, who always considered him as one of themselves, although his work was rather engineering than architectural, made him a Director of the Berlin Architectural Society, and, for many years, enjoyed his counsel and sympathy as much, no doubt, as he did theirs. After his great work at Berlin was complete, he was immediately called to carry out similar undertakings elsewhere, and Moscow, Tokio, Cairo and Alexandria, besides Stettin and Darmstadt, owe to him their drainage systems.

ARCHITECTS will be interested to learn the limit of size to which it is practicable to turn and polish granite columns in this country. In the new Episcopal Cathedral in New York, provision is made for eight columns, the shafts of which, of polished granite, are fifty-four feet long, and six feet in diameter. There seems to be no difficulty in getting these shafts as monoliths out of the quarry; but, in order to polish them, they must be put in a lathe, and, after several years' trial, the contractor, Mr. John Pierce, has come to the conclusion that it is impracticable, with any machinery now in use, to support the columns in such a way that they will not break, from their own weight, while being turned. The turning itself presents no great difficulty, as lathes capable of turning a cannon sixty feet long have been for many years in use; but a cannon needs little or no support in the middle while being turned, whereas a granite cylinder, nine diameters long, supported only at the ends, cannot be depended upon to sustain its own weight. If it were possible to rest the middle portion on a support of some kind, the strain would be greatly diminished, but, in the nature of things, it is impracticable to give a stone, which is comparatively rough when put into the lathe, a firm support of this sort. The Trustees of the Cathedral, on being informed of the circumstances, have authorized the making of these shafts in two pieces, one thirty-six feet long, and the other eighteen. Only three of the columns are as yet ordered, the intention being to erect them by subscription, as memorials of distinguished persons. They cost about sixteen thousand dollars each, so that they do not form a very expensive monument, and it would be difficult to devise a more effective one for the money.

THE National Arts Club, of New York, repeats its invitation to all persons interested to join in its contribution toward the rebuilding of the Venetian Campanile. About six hundred dollars was subscribed among members of the Club immediately after the catastrophe, and, as the Syndic of Venice, Count Grimani, has assured the Club that its contribution will be received with "the heartfelt thanks" of the city of Venice for its interest and sympathy, the Committee of the Club feels justified in again inviting all Americans who would like to be associated with the gift to send contributions, of any size, to its Treasurer, Mr. Spencer Trask, 27 Pine Street, New York.

THE timber lands of the Northwest, which, a few years ago, were supposed to be practically inexhaustible, have fallen mostly into the hands of syndicates of speculators, who, as they now control the supply of lumber, have raised prices very materially; and the people of the Pacific Coast will have to pay the advance. Undoubtedly, in California and Oregon, as in Minnesota, Iowa, and other Western States, the result of the increase in prices will be to excite a popular demand for the repeal of the duties on lumber; but, even with Canadian lumber admitted free, the cost of timber building is likely to rise, with occasional fluctuations, until construction with more substantial materials becomes the rule here, even in country districts, as it is everywhere in Europe except in the forest districts. That the art of architecture will gain by the change there can hardly be any question. Our wooden houses are well planned, convenient, neat, and occasionally picturesque, but they rarely have anything of real fine-art about them, and age and decay, instead of making them more beautiful, as is often the case with stone buildings, and sometimes with those of brick and terra-cotta, give them a peculiarly repulsive meanness. It is curious that, with all our boasted science, our facilities for transportation, and our unrivalled cements, it seems to be impossible for us to approach the perfection of construction of, let us say, the fourteenth or fifteenth century. Most architects are familiar with the Hôtel Cluny, in Paris, whose perfection of material and workmanship, after exposure to the elements for four hundred years, puts to shame the cracked and dislocated masonry, the leaning and crooked walls, and the open joints, of almost all our most costly buildings. The experienced eye of the architect shows him, as he passes through our city streets, that very few of the structures that he sees there will reach their one-hundredth birthday, without practical rebuilding, much less their four-hundredth.

IT is common to excuse these imperfections of modern construction by saying that modern requirements demand a haste in building which is incompatible with solidity, and that, as American cities are, practically, rebuilt at least once in fifty years, it is not necessary to spend time and money in assuring the indefinite duration of a structure which, in half a century, at most, will be removed as an obsolete and valueless incumbrance to the ground. There is, of course, much truth in this, but the artist, if not the economist, finds difficulty in reconciling himself to the idea that his work will, perhaps within his own lifetime, be torn down, and consigned to the dump-heap, to make room for that of some more "up-to-date" person; and it is not impossible that we may find, as artistic feeling grows more general in this country, the best work devoted to comparatively unpretending structures.

THE Paris, Lyons and Mediterranean Railway has put in effect this summer a system of reduced-rate tickets which deserves imitation here. As this road connects Paris not only with the Mediterranean, but with Geneva and the mountain regions of Switzerland, it offers great attractions for people who wish to take their families to some pleasant seaside or mountain resort for the summer; and the railway company has undertaken to encourage the Parisians to give their families this pleasure by offering family tickets, available from the fifteenth of July to the first of November, between Paris and any station on the Paris, Lyons and Mediterranean system, at a reduced rate. The rate, for a family of three, going and returning, is equivalent to the price of five single tickets; that is, two of the family pay full fare both ways, while the third pays half fare. For a family of four or more, the price is again reduced, each person beyond the third paying one-half of the regular fare one way, or one-quarter of the full rate; so that a family of nine persons, for example, pays only four full fares. The well-to-do French are so fond of family trips that an arrangement of this kind is likely to be very popular; and the railway company adds to its attractions by providing that any one or more of the persons included in a "collective ticket" of this kind, on presenting a certificate which is furnished, on request, with the ticket, shall be entitled to travel between Paris and the destination named in the collective ticket, at any time while it remains in force, for one-half the regular fare; the object of this being, of course, to permit fathers of families, uncles or elder brothers, to attend to their affairs in Paris, or to make business visits, without too great expense. To make sure that these family tickets are used for the intended purpose, they are issued only between Paris and stations at a distance of two hundred miles or more; but, in order that prudent fathers of families may economize in their own travelling, without obliging their wives and children to journey uncomfortably, a person who takes a first-class "collective ticket" for his family may, after he has installed them comfortably in their seashore or mountain hotel, travel back and forth alone at half second-class fare.

RELATIVE PERMANENCE OF STEEL AND MASONRY CONSTRUCTION.[1] — I.

FORMAL papers, prepared with deliberation for delivery before an audience, or for publication in a periodical, are very excellent and desirable means for imparting information, but it is questionable whether, for the giving of information in an impressive and memorable form, they equal the more accidental method of *viva voce* discussion.

It is this belief that leads us to quote at length the discussion that our fellow-professionals the members of the American Society of Civil Engineers recently held on the ever-interesting topic of the lasting qualities of modern methods of construction.

CHARLES G. DARRACH, M. Am. Soc. C. E. — The speaker approaches this subject with some trepidation, as it is worthy of higher talent than he possesses.

To deal with the subject properly, there should be not only discussion, but contention and consultation, so that it may not be recorded among the dead by the epitaph which heads our publications: "This Society is not responsible, as a body, for the facts and opinions advanced in any of its publications."

The speaker would suggest that the subject be amended so as to read, "Is Metallic Construction, or the Combination of Metal and Cement Concrete, susceptible of being made as Permanent a Building Material as Masonry?"

Many years ago, the late Julius W. Adams, then President of the Society, suggested to the speaker that it was preëminently the business of the engineer to adapt the *motif* of his construction to the genius of the locality in which his field of operations lay. This is, in fact, the chief business of the engineer, and is using the best and cheapest means for the end to be attained.

It must not be forgotten, however, in making comparisons, that the best materials may be manipulated so as to produce inferior results, and the proper use of materials in composite engineering construction is as absolutely necessary as in the domestic arts, which please our palates, for it is well known that the cook can either spoil the pie or make the pudding.

Before determining upon a method of construction, there should be considered, not only the first cost, but also the expense of maintenance. The ease of inspection during erection should also be considered, as well as the adaptability of the material to obtain the most economical results.

A knowledge of the relative strength of the various materials, and also of the causes for deterioration and decay, should be attained. With this knowledge the problems will reduce themselves to some degree of simplicity. This knowledge can then be supplemented by observation and experiment, so that there need be no reason to fear results. Knowing the disease, the remedy therefor can be obtained.

The idea that masonry is the *sine qua non* of all permanent construction seems to the speaker to be without foundation. Permanence of masonry construction depends, not only upon proper design, but also upon perfect workmanship. All who have had any experience in construction know well that the most trying and difficult task of the engineer is to have masonry properly erected. In masonry construction, dependence must be placed upon the physical value of the stone, sand and cement. The stone, being a natural product, may or may not have that degree of permanence expected by the engineer, and, to meet this contingency, a large factor of safety is generally introduced in the calculations for masonry construction. Also, in many cases, where masonry is used, it is impossible to design the structure so that the economical quantities of material to meet necessary requirements can be used.

As has been intimated, masonry, as well as metallic construction, may be subject to deterioration and decay.

In using metallic construction, it is possible to calculate the stress upon the structure with a far greater degree of accuracy than can be applied to a masonry structure; consequently, the factor of ignorance can be reduced and the quantity of material used be nearer to that which is theoretically required. Inspection during construction and erection, and after completion, is more convenient, and, knowing the causes for deterioration, the necessary remedies and protection may be readily applied.

The use of concrete, or artificial stone, appeals to the speaker with much force. By its use artificial stone of equal value throughout the entire content can be obtained, and that value can be determined in direct accordance with the material of which it is made; so that the composition of the artificial stone can be adapted directly to the use for which it is intended. The cost of construction for equal values in artificial stone is generally much less than if natural stone were used.

Artificial stone, or concrete, forms a protection against the usual deterioration of metallic construction by atmospheric influence.

The logical conclusion seems to be that the best method of construction would be composite, using artificial stone and metal. Artificial stone, or concrete, not only forms a protection for the metal, but adds its value in resisting stress, and, except in subterranean and subaqueous structures the deterioration of metal encased in cement-concrete of proper composition may be disregarded.

There are many examples of structural metallic work encased in concrete where no deterioration is shown, even from ancient times. The modern system of iron construction encased in concrete or brick masonry, used in high office-buildings, shows that, when properly constructed, there is no observable deterioration in the metallic work. The Drexel Building, Fifth and Chestnut Streets, Philadelphia, was constructed in the years 1886–87. The speaker has removed portions of the ironwork in that building, and could see no deterioration whatever.

In the year 1891, the speaker made a cement floor and walk over a pipe-tunnel, the upper surface of which was exposed to all atmospheric influences. This floor was of cement concrete, about 4 inches in thickness, and had a span of about 5 feet. It was reënforced by bands of ordinary chicken-wire fencing, 16 inches in width, laid across the tunnel and spaced 16 inches apart. A bed of mortar, composed of cement and sand, about 1 inch thick, was laid upon a horizontal plank centre, and brought up flush with the top of the side-walls of the tunnel. Over this mortar the chicken-wire was laid, extending over the side-walls. The cement-concrete floor, 3 inches in depth, was laid upon this chicken-wire, and finished, the walk being about 7 feet wide. Although this walk has been in use for eleven years, no deterioration is apparent, nor has there ever been any leakage, even during the most severe storms.

In relation to this, attention is called to what the speaker considers faulty construction. The concrete floors of most office-buildings are of cement and ashes or cinders. The resultant concrete is not impervious. The large quantity of water used in construction is retained within the exterior skins of these floors for a long period, and, no doubt, is a detriment to the metallic construction of the floors.

In the year 1884, the speaker constructed a water-works well at Redbank, N. J. This well was some 15 feet in interior diameter, and was sunk from the surface of the ground to a depth of about 60 feet. The lower half, or 30 feet, was below the ocean level, and the entire well, to within 5 feet of the surface of the ground, was under the ground-water level. The water arose in the well to within 8 feet of the surface of the ground, so that the well-casing, 20 inches in thickness, constructed of hard brick laid in Portland-cement mortar, was continually in contact with water on both sides, and at times, even during construction, was under a pressure from the outside of more than 40 feet.

For reënforcing the brick shell during sinking, ¾-inch iron rods were extended from the cutting-curb upward through the masonry; and, at intervals of about 6 feet, large wrought-iron washers were placed over the rods and extended around the entire circumference of the well-casing. This construction was adopted to reënforce the green masonry of the casing during the operation of sinking. It would be interesting to examine this ironwork for the purposes of discussing this subject.

In the speaker's opinion, the hue and cry raised in relation to a properly constructed iron skeleton, in modern high buildings, is without foundation.

In buildings where the ironwork is concealed within fireproofing or concrete, there is little reason to suppose that any deterioration takes place, and the speaker will venture to state that, if the temperature and the humidity of the atmosphere immediately adjacent to the metallic structural work were observed and recorded, there would be found but little, if any, difference throughout the year.

Greater care, and concrete richer in cement, should be used for subterranean and subaqueous composite construction, and, in some cases, it would be advisable to use an asphaltic concrete, so as to absolutely prevent the possibility of any moisture coming in contact with the metal.

The numerous cases of electrolysis in subterranean metallic pipes suggest a criticism which has not as yet been presented to the speaker. Is it not possible that, in subterranean and subaqueous work, metal, even when constructed in cement concrete, may be subject to electrolysis similar to that experienced in metallic water and gas pipes? The speaker is of the opinion that all such subaqueous and subterranean constructions should be laid, as heretofore indicated, in an asphaltic concrete, and efforts should be made to force our legislators to pass laws preventing the use of the ground for an omnibus commercial electrical conductor.

We can also substitute for cast and wrought iron pipes a cheaper and more permanent conduit, constructed under the composite system. The capacity of metallic water-pipes is materially diminished by the formation of nodules on their interior surfaces, and, with some waters, the life of iron pipes is merely a question of a very few years.

Composite pipes, constructed of concrete reënforced by metal, can be constructed so as to have the necessary strength without the loss of conductivity due to the metal nodules, and it is not necessary that the concrete of which they are composed should be of such richness as to absolutely prevent at first the transmission of moisture, except when the liquid conducted is free from suspended matter. Conduits carrying either turbid water or sewage soon fill up the pores in the concrete, and make it impervious.

In 1894, the speaker constructed a septic tank for the Insane Asylum at Wernersville, Pa. The diameter of the tank was 25 feet, and the depth of water was 14 feet. The well was constructed of hard brick, laid in Portland-cement mortar, and had a maximum thickness of 21 inches. There was an inside coating of plaster, ½-inch thick, made of equal parts of Portland-cement and sharp sand. Tests were made through a period of ten weeks, at the end of which time masonry was practically impervious.

[1] An Informal Discussion at the Annual Convention, May 21, 1902, of the American Society of Civil Engineers and printed in the Society's *Proceedings* for August, 1902.

There is a paucity of experimental knowledge as to the strength of composite construction; the field is wide, of great importance, and deserves the attention and study of the members of our profession.

Before closing, the speaker would suggest that further experiment be instituted as to the possibility of making a metallic weld, to avoid as much as possible the use of bolts and rivets. He is aware that the electric weld does not give a resultant value of 100 per cent, but he is of the opinion that the Society would be gratified with a knowledge of the best results so far obtained.

EUGENE W. STERN, M. Am. Soc. C. E. — Discussing this question from the standpoint of the protection of iron-and-steel construction in buildings, the experience of the speaker is that iron does rust in buildings. That is, it rusts unless properly protected. Therefore, it is a very important question to determine what kind of protection it needs to prevent this, under different conditions of exposure.

In the interior of buildings, where there is no chance of moisture or acids attacking the iron, and where it is usually surrounded by fireproofing materials, the danger from rust is very slight. The usual coat of paint appears to give all the protection necessary.

The speaker has seen ironwork taken from the interior of buildings, in one case after thirty years, in which the shop-marks of white paint and the brown coat of red-oxide paint were in as perfect condition as if done but recently.

In the exterior walls of a building, however, and in the roof and cellar construction, it is an entirely different matter. A driving rain will go through the outer coating of brickwork; roofs will somehow or other leak, and cellars rarely are absolutely dry. The speaker has invariably seen evidences of rust on the ironwork taken from the above-mentioned positions in comparatively recent buildings. The paint seemed to have disappeared entirely in many cases where exterior brickwork was laid up against the iron. Where the mortar was in immediate contact with the iron, there was no rust; where the brick was directly in contact, there was considerable rust.

In a building in New York City, built in 1869, and now being taken down, cast-iron girders supporting the brick arches of the sidewalk construction were rusted about $\frac{1}{8}$ inch where the brick was immediately in contact with the iron, but where the mortar was directly in contact the iron was perfectly clean and black, looking as if taken from the sand only yesterday. The evidence that paint protects ironwork thus exposed, for any length of time, is not forthcoming. The paint seems to disappear entirely in a few years. Nor, in the speaker's opinion, does it help matters to prepare the surface of the ironwork, prior to painting, in the most painstaking and thorough manner, even using the sand-blast to remove the mill scale. Some of the paint is rubbed off the ironwork during erection, notwithstanding that the very greatest care is used. It is an inseparable condition, from the nature of the work, that this happens. There is then a starting-point for rust, and this will follow more quickly on a sand-blasted surface than on one having its mill scale.

The speaker is strongly opposed to the use of the sand-blast on ironwork for buildings. It does not help to protect iron permanently, and the expense, therefore, is not justified. For this reason the following method of protection is recommended: All the columns and girders in the exterior walls, the roof, the cellar, and wherever exposed to moisture or acids, should be surrounded with Portland-cement mortar, and the bore of the columns in such locations should also be filled solid with this mortar.

Broken stone in the mixture is not recommended, because the voids may not always be filled; and cinders are strongly objected to because there is good evidence to show their very harmful effect.

A building having its frame thus protected should remain structurally sound, judging from evidence, for many years, perhaps longer than one made entirely of masonry, unless of the best quality.

GEORGE F. SWAIN, M. Am. Soc. C. E. — People in general have come to consider iron or steel as rather perishable materials when compared with stone. Many persons form this idea by considering the old stone structures of the Greeks and Romans, notwithstanding the fact, referred to by one speaker, that there are a great many stone structures which have proved very perishable. Many instances can be cited of bridge-abutments built of sandstone or limestone which have practically gone to pieces within thirty or forty years. In judging of the ancient stone structures of Greece or Rome, we must also remember the difference in climate between those countries and Northern New England. It may not be out of place to point out also some differences between the ways in which steel and stone structures act. A stone structure is a comparatively simple one; it acts by its own weight; it acts generally in simple compression; its durability is a question of stability rather than of strength, and the loads may generally be increased greatly without endangering it.

A steel structure is very different. It is a complex structure, involving complicated stresses and strains; its strength is a controlling factor in its durability, and any increase of load reduces correspondingly its margin of safety. Engineers who have had much to do with questions of renewing bridges will agree with the speaker that cases in which bridges have had to be renewed on account of the actual wearing out of the material are comparatively rare. Of course, there are cases where corrosion is active, especially in bridges over railroads, but, leaving out such cases, the greater number of renewals which have taken place are due to other causes. One of these is defective design. Engineers are learning more and more every day in regard to the details of steel structures, and they are experimenting and studying the various connections and details. The result is that we find that structures built twenty or thirty years ago, and supposed to have an ample factor of safety, really had a much smaller factor. Moreover, as every one knows, the loads to which steel structures are exposed have increased enormously. These are the two elements which have caused the principal renewals of bridge structures. These elements will continue to be present, and, as long as they are present, we cannot hope to have steel structures in general as durable as the best stone structures would be. In the case of a steel-frame building, the loads, presumably, are not to change very much, and with good design the actual durability of the material should govern the life of the structure. As to what that durability will be seems very uncertain. All the engineer can do is to take every precaution he can to ensure the permanency of his steel. The speaker agrees with Mr. Stern that the steel should be completely enclosed in concrete, but, even under these conditions, he does not think the steel will last as long as the best masonry.

CHARLES C. WENTWORTH, M. Am. Soc. C. E. — The answer so far given to this question is that steel, when embedded in concrete to a sufficient depth, is permanent. A structure in which the steel is thus hidden becomes at times essentially as one built of concrete as of steel, and may be even more so. The fact that, in most cases, it is impracticable to adopt a composite construction, rather than one all steel or all concrete, renders it still necessary to seek a more complete answer to the question; especially if it be considered, as it must be, that bridges are made of "building material."

The answer given, for instance, is inapplicable to the East River bridges, built or building in New York City, and to the greater part, by weight, of ordinary railway-bridges. It is surely inapplicable to more structural steelwork, by weight, than it is applicable to all kinds.

The protection afforded by concrete is afforded by paint, but in a less degree. The objection to paint as an answer to the question lies in the fact that much structural work is inaccessible after erection, and that, in all likelihood, paint will not be applied properly or with sufficient frequency even where the work can be reached by the painter.

A more complete answer to the question appears to lie in the electro-plating of structural steel with copper or aluminium. This has already been done, to a small extent; but the subject does not appear to have received the attention it deserves.

The speaker sees no reason why such plating need be of excessive cost. Aluminium is an exceedingly abundant element, and is becoming cheaper; copper may retain its value. Metallic aluminium may not be needed in the process, but such aluminium salt as will serve when in solution as the source of the metallic aluminium finally composing the plating.

Of course it would be impracticable to plate steel as it comes from the rolls, as rivet-heads and sheared edges would need subsequent plating; but each structural piece, ready for shipment and erection in the structure, could be plated, and the details of field-connections arranged with a view to their permanency on the same lines.

The speaker does not wish to appear as objecting to the use of concrete structures stiffened by steel, with the incidental protection afforded to the steel by the concrete. Such structures are entirely proper and appropriate in very many cases; but, in conclusion, he wishes to say that the plating of structural steel, as a more general answer to the question, is well worthy of the attention of the members of this Society.

OBERLIN SMITH, M. Am. Soc. C. E. — The speaker is not experienced in putting up big steel buildings, but it seems to him that a certain precaution should be taken, which, perhaps, usually is not, and which will be mentioned later. Some of these buildings have been up a good many years and seem to be very strong, but after this generation is gone — fifty or one hundred years hence — if there is no way to examine all that hidden metal inside the masonry, how are people going to feel about the stability of such buildings? When will the time arrive for them to come down of themselves? There should be, therefore, some systematic method of examination.

Of course, after many years, the owners may tear out some of the masonry and examine the steel, but it would be a small matter now to provide inspection holes, properly covered, and to differentiate and classify the various conditions of possible deterioration to which the metal may be subjected.

Certain parts of the building which are most likely to rust, and where such rusting is most likely to cause accidents and damage, would be in one class, while other parts which are not so likely to be affected would be in another, and so forth. In every building, in several proper locations, let there be certain places left where the metal can very easily be exposed, and again covered up — of course in a fireproof manner. This would be done instead of merely tearing away a building at random, with perhaps considerable damage and with consequent expensive repairs.

To find out how the steel is really getting along, there should be certain times for observation, with definite intervals between. These intervals might be five, or ten, or twenty-five, years — as experience should dictate. The most risky "classes" should be examined the oftenest. In general, there should be certain definite methods of inspection, and definite places for inspection, and definite times for inspection of this buried and perhaps much-suffering metal, not only that such may be done with less damage to the building, but that it

may be done thinkingly and systematically — instead of waiting for some Chicago post-office to become obsolete that we may see whether it continued safe until the end. If not done in such a manner all may be neglected, and intervals which are uncertain may become of infinite length.

WILLIAM R. WEBSTER, M. Am. Soc. C. E. — The examination of many old bridges and other structures has shown that the white-lead marking-letters of the mill are intact, and that the metal is better protected at these places than at others. That is, the plates and shapes are generally marked while hot, and before the material has had a chance to rust; but the full importance of applying the protective coating while the metal is hot has not been appreciated.

The ordinary oiling at the mills has not been satisfactory, as the material is generally made sticky and difficult to handle in the shops. In relation to this, attention is called to a railroad spike dipped in oil, while slightly heated (in accordance with the specifications for an export order). Under this treatment the oil quickly dried and formed a good hard protective coating. This process might be applied to ordinary structural shapes and plates with great advantage; the material being cleaned with brushes and an air blast, and the oil applied while the material is still hot, the coating in no case being heavy enough to interfere with a thorough inspection for surface defects. The shop painting, of course, should be applied in the usual manner.

JAMES OWEN, M. Am. Soc. C. E. — It might be interesting to know that, in endeavoring to find some records of the strength of concrete beams, the speaker found, in the library of the Society, the report of some experiments made by Mr. Kirkaldy in 1854. Mr. Kirkaldy at that time had made an elaborate investigation of the strength of the admixture of concrete with iron rods and iron wire. Results showed at that time that the strength of the combination of the two materials, iron and concrete, was increased by more than two and one-half times that of the simple concrete itself. This is quite in accord with the present experiments in that line, and it is interesting to note that while these investigations were made so many years ago, it is only of late that the profession has appreciated their importance.

The speaker had a peculiar experience in relation to the strength of an ordinary bridge built with iron beams and brick arches and covered with concrete. The span was 15 feet. The bridge had been built some eight or ten years when the local engineer decided to change the grade of the street, and raised it about 6 feet. This alteration imposed on the bridge itself an extra load of 900 pounds per square foot. That, with a previous allowance of 200 pounds, made a total of 11,000 pounds. The bridge was originally designed for a live and dead load of 300 pounds and a factor of safety of four. A critical examination of the bridge, after the extra load had been on about six months, showed no rupture of any kind and no apparent deflection. The bridge is still in use.

It may be presumed, therefore, that the combined use of steel and concrete is susceptible of a great deal of further development, and that its ultimate strength is apparently unknown.

E. T. D. MYERS, JR., M. Am. Soc. C. E. — During the summer of 1901, a rifle-barrel was pumped up through the 20 inch pipe connected with the centrifrugal pump which was used in dredging out the historic dock immediately in front of Libby Prison. It arrived at the usual joint, just in front of the pump, which was intended to stop obstructions too large to pass through the pump. The pump was stopped and the rifle-barrel taken out. It was found that the blue enamel on the barrel was intact on at least 90 per cent of its surface, and the sight could be raised and lowered without the slightest difficulty. The date on the barrel was 1856. It was probably thrown in the water in 1865.

The water there is fresh, and is entirely free from lime. It is what is known as a "kind" water for boilers. The speaker does not know whether metal would last that way in other waters, but he has pumped up and dug up shells and rifles which were not rusted.

The depth of water in the dock was originally 16 feet, and the depth of the silt was about 4 feet. The pump was working at a depth of 22 feet. It is impossible to state the depth at which the rifle lay, but it probably came from the 16-foot level. The bottom is composed of sand and gravel, and the silt lying upon it came from the James River, which runs through a red-clay country. The rifle-barrel, therefore, had about 16 feet of mud and fresh water above it.

The speaker does not feel competent to discuss this topic, but he is deeply interested in it, and hopes that the result of the discussion will be the addition of much valuable information.

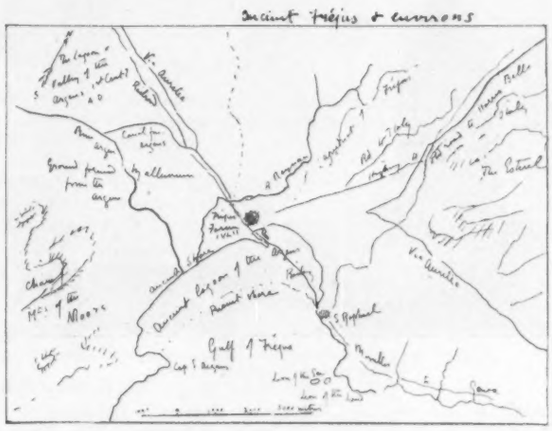
[To be continued.]

THE BALL-ROOM IN THE MELBOURNE GOVERNMENT HOUSE. — In the opinion of Mr. Shields, the new Australian Treasurer, Australians are nationally and individually an extravagant people. He proves it with an anecdote. When the present huge Government House in Melbourne was being planned, the architect consulted the Premier of the period as to the size of the ball-room. "Do you know anything about ball-rooms in other parts of the world?" queried the Premier. "I only know the one in Buckingham Palace," was the reply. "Then build our ball-room a third bigger than the one in Buckingham Palace." It was done as the lordly Premier commanded, and so Melbourne came to possess the biggest ball room in the world. — *N. Y. Tribune.*

ROMAN AND ROMANESQUE FRANCE.[1] — III.

FRÉJUS.

WHEN the Chancellor Michel de l'Hôpital (1505–73) was travelling in the South of France, he composed a letter to his friend Jacques du Four de Pibrac, in Latin verse, as was his wont, being a scholar devoted to elegant literature. "We come to Fréjus,"

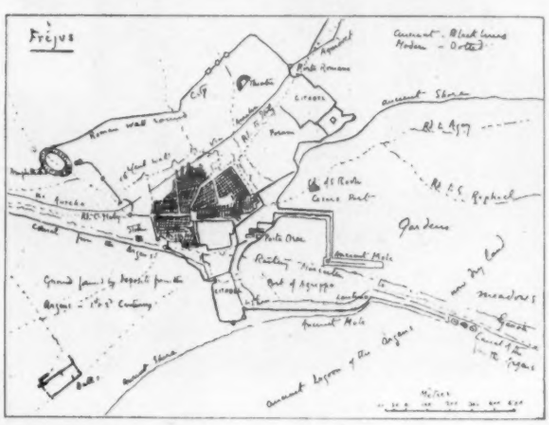


he says, "which is now only a poor small town. Here are the ruins of the old theatre, the broken arches, the baths, the aqueduct, and the scattered remains of the quay and basins; the port has disappeared beneath the sands, and in its place there are only the beach and the fields." Such as it was in the sixteenth century so it is now — dead of the mud and alluvium of the river to which it formerly owed its existence.

The earliest colonists were the Phœnicians and Phokean Greeks. Agricola, the father-in-law of Tacitus, calls it an illustrious and very old colony; Cæsar called it *Forum Julii Decumanorum*, and it became an important port on the Via Aurelia.

After the death of Cæsar, confusion reigned in the Empire. Antony was in the Alps, while Lepidus was governing Provence; hence, they were opposed to each other; and in a letter written by Marcus Lepidus to Cicero we get an idea of the state of affairs as Antony drew near to Fréjus: "I have learned," he wrote, "that Antony is advancing towards my province at the head of his army. . . . I have left the confluence of the Rhone, and have come by forced marches as far as Forum Vocanii [24 miles from Fréjus]; I have encamped my troops a little beyond it, near the river Argens." . . . Plancus adds, saluting Cicero, "I have heard that Antony arrived at Fréjus with his vanguard about the ides of May." Later the two commanders met and formed a project for uniting their forces and sharing the spoil, the place of meeting being the bridge of Argens, the remains of which were standing only thirty years ago, when the three unequal arches were carried away by the sudden rise of the river, leaving only some portions of the abutments.

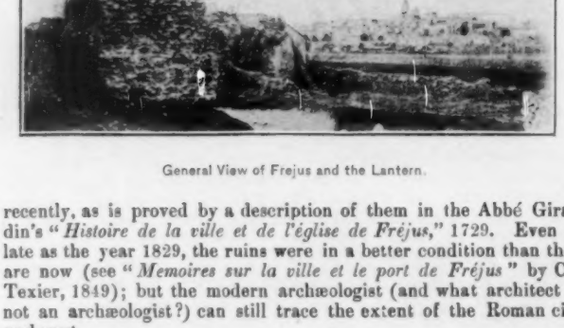
When the railway from Toulon to Nice was being constructed, excavations had to be made upon the alluvial land which was once the port of Fréjus; many inscribed stones were brought to light and *a few saved*, most of them being destroyed by the workmen. One, evidently a *cippus*, seems to have been a pedestal for a statue or vase. The beautiful letters of the inscription date it about the



second century B. C. The inscription is bilingual, the dedication being in Latin, the pathetic epitaph in Greek. "To Caius Vibius Ligur, his mother Maxima. This tomb was built for those who were older; but destiny has struck, under the influence of the climate of the country, a child seven years old. His relations, his father and

[1] Continued from No. 1394, page 86.

his mother, have buried him whom they had brought up. . . . Oh, the vain hopes of men here below." But the mass of ruins are of the period of Imperial Rome, subsequent to the conquest of Gaul, and it is sad to relate that the greatest destruction has taken place



General View of Frejus and the Lantern.

recently, as is proved by a description of them in the Abbé Girardin's "*Histoire de la ville et de l'église de Fréjus*," 1729. Even as late as the year 1829, the ruins were in a better condition than they are now (see "*Memoires sur la ville et le port de Fréjus*" by Ch. Texier, 1849); but the modern archæologist (and what architect is not an archæologist?) can still trace the extent of the Roman city and port.

The town had four gates: the Porta Gallica, Porta Romana, Porta Argentea and Porta Oræ, called incorrectly Aurea and Dorée in modern times. Built of regular courses of red sandstone, porphyry and brick, it is of later date than the rest of the town, and formed part of a large portico giving access to the quay, and openings onto the lagoon, which in old French was called (scarcely three centuries ago) *l'orée*, a word derived from *ora*, border, shore (Leuthéric). Joinville used it in his life of St. Louis, "avait fait tendre

Portion of Aqueduct, Frejus.

ung pavillon sur l'orée du fleuve"; and Rabelais — "Les porte-guidons et porte-enseignes avaient unis leurs guidons et enseignent l'orée des murs." Thus, the theory that it was called Porta Dorée by reason of the richness of the merchandise which passed under it is pure fiction.

Shapeless ruins at each end of the town represent the citadels which frowned upon the harbor, now but a sandy plain interspersed with stagnant pools and efforts towards cultivation. Across one of these fields is the "light-house," so named upon D'Auville's map, but without a snap of evidence to prove that it was ever hollow in the interior. On the contrary, it is quite solid and is thought to have been a sea-mark, the summit of the pyramid being used for a vane or flagstaff. It has a circular base, surmounted by a six-sided prism, on the top of which there is a hexagonal pyramid; and it is possible that the faces of the prism were utilized, like those of the Tower of the Winds at Athens, as sundials; the vane at the summit, indicating the direction of the wind, and thus acting as a guide to vessels entering the port. It is in a perfect state of preservation and marks the end of the great Roman pier. "It is interesting," says M. Leuthéric, "to observe that one of the oldest Greek poets, Leschês, who lived some 630 B. C., describes in his '*Ilias Minor*' a tower of the same kind, which stood at the extremity of the promontory of Sigeium, on the Hellespont, at the time of the Siege of Troy."

The real pharos of Fréjus was opposite, and was constructed very much after the model of the one at Alexandria. It was, unfortunately, destroyed by an earthquake in 1303.

The great principle of the Roman governors as regards building was to give employment to their soldiers in time of peace. Hence, the style of architecture adopted from the Etruscans, the piling up

Roman Ruin, Frejus.

of huge masses of hewn stone without cement and the employment of the arch ceased with the Republic, and in the colonies buildings were constructed of rubble held together by cement. This style of building could be done by any able-bodied men, were they soldiers, prisoners of war, slaves, convicts or freemen.

Fréjus is an example of this style of building. It was done quickly — the whole town, walls, quays and gates were erected in the same manner and of the same material; and though blocks of stone could have been found in the neighboring mountains, this would have required time; so the whole place was built of brick and rubble faced with marble casings and decorations. If a rock came in the way, it was utilized and built in, as was the case in the Amphitheatre, half of it being a mass of volcanic rock. Everywhere there is evidence of speed, and the practical desire of turning everything to advantage.

The greatest wisdom was displayed by the Romans in their water-supply; wherever they passed, we find the remains of aqueducts. Pure water was as necessary to them as pure air is to us. The modern practice of depending upon rivers and wells, in the towns the former frequently sewers as well as drinking-fountains, was unknown to them. At Fréjus a little river some 37 miles off, the Siagne, was diverted across an aqueduct for the supply of the town

— the ruins may still be traced. Part of the way it was a subterranean conduit, the water coming in at the level of the ramparts, and passing under flagstones which encircled the town. The arches had a span of 5 metres, and were 10 or 12 metres high. In some parts a second channel had been made, showing that the first, being constructed too rapidly, had given way.

The remains of the Amphitheatre are sufficient to enable us to judge of its exact dimensions. It is elliptical, 113 metres at the greater, 95 metres at the lesser axis; the arena being 61.71 m. x 39.6 m. It may thus be surmised that the population of Fréjus was about 20,000 to 25,000 persons.

After the Roman occupation had ceased, the town fell into decay, barbarians and Saracens joining in its destruction. The arena became a fortress, and the bishops of the tenth century, in building up a new wall, used up all the old material they required. The port silted up like those of Ravenna, Ostia, Aigues-Mortes, and one of England's Cinque-ports, Sandgate; and now one walks over market-gardens and fields where the 300 galleys cast anchor which were captured by Octavius Cæsar at Actium. S. Beale.

Books and Papers

Mr. Hodgson is very well known as a writer of practical manuals for mechanics, which have had an extensive and well-deserved circulation. The present little work,[1] although less pretentious than its name might perhaps imply, is really modern, and should prove useful to a large number of readers. The first division, which treats of "Carpenters' Geometry," would be improved by more scientific precision, as where an "equilateral triangle" is defined as "a polygon having three sides," omitting the word "regular," or in the description of the ellipse; but the problems given in illustration are well chosen, and ambitious young men will have no difficulty in taking up, later, more scientific and comprehensive treatises on descriptive and applied geometry.

It is, perhaps, inevitable that practical treatises of this sort should seem to the instructed reader rambling and disconnected, jumping suddenly from the geometry of triangles to that of conic sections; from this, again, to problems in descriptive geometry of a tolerably complicated character, and winding up with observations on balloon-framing; but Mr. Hodgson understands thoroughly the experiences of the young mechanic, and is sensible enough to sacrifice smoothness of form for the sake of collecting the solutions of as many every-day difficulties as possible in a single small treatise; and, although not very much can be said about roof-trussing and stair-building, and making compound beams, and balloon-framing, and joinery, and centring, in one small book, which has to contain, in addition, a hundred pages of geometry, what is said is, in most cases, exactly what the young builder needs first to know, and the author refers his readers, where he thinks it necessary, to books from which further information can be obtained. We doubt whether the profession will quite agree with Mr. Hodgson, that "Architects say that the exact measurement for a tread and riser should be 16 inches, or thereabouts." Seventeen to 18 inches would be nearer the mark, and most architects, instead of adding the tread and riser together, multiply them, and take a product between 70 and 75 as limits. This is, however, a detail, in regard to which local customs may vary, and a mechanic working from an architect's plans is, of course, guided by them.

Notwithstanding these trifling criticisms, Mr. Hodgson's little book is one which every young architect, as well as every young mechanic, will find very useful. There is a common notion among draughtsmen that they need not trouble themselves about details of construction, but this is not the opinion of the most distinguished architects, who are generally noted for their ingenuity in mechanical as well as artistic points. Mr. R. Norman Shaw, as thorough an artist as the profession in England has ever possessed, patented, we believe, an improvement in soil-pipes, and Wren was famous as a mechanic. Without attempting to rival these masters, the young architect will find it valuable to him to be able to show the men who work under him, in case of need, how to "saw in" a base-board to fit neatly around a curve, or how to mitre a raking moulding, or a hundred other things which, without his intelligent direction, would be discreditably botched; and in regard to such matters Mr. Hodgson's book gives a great many suggestions, which can soon be learned, and are likely to come frequently into use in the daily work of the young architect, assistant or superintendent.

Memorial Window in Westminster. — When Westminster Abbey was reopened for public worship on Sunday, October 5, the magnificent new rose window which has been placed in the south transept as a memorial to the late Duke of Westminster was seen in all its beauty. Its cost has been covered by a public subscription, which amounted to nearly £2,400. The general subject is "The Preparation of the World for the Great Day," and there are twelve lower lights representing the early Christian preachers and martyrs. The design is by Mr. G. F. Bodley, A. R. A., and the colors chosen are much brighter than those of the old window, in order to improve the light in the rather gloomy Poets' Corner. — *London Telegraph.*

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[1] "*Modern Carpentry.*" A Practical Manual. By Fred T. Hodgson, architect. Illustrated. Chicago: Frederick J. Drake & Co. 1902.

Illustrations

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

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THE WARD-MACKEY CO. BAKERY BUILDING, PITTSBURGH, PA. MR. C. M. BARTBERGER, ARCHITECT, PITTSBURGH, PA.

"ORIGINALITY" AND L'ART NOUVEAU: HOUSE ON THE AVENUE RAPP, PARIS, FRANCE. M. LAVIROTTE, ARCHITECT.

This plate is copied from the *Builder*.

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AN OLD BUILDING-CONTRACT.

New York, N. Y., October 4, 1902.

To the Editors of the American Architect: —

Dear Sirs, — I came across an old building-contract in my grandfather's account-book and enclose herewith a copy, thinking it might be of interest to your readers. Very truly yours,

C. R. McNeil.

Know all men by these presents that I, Salmon Hummiston, of Harwinton, in the County of Litchfield and State of Connecticut, am holden and firmly bound unto Isaac McNeile of Litchfield Town and County aforesaid in the sum of £100 lawful money for which payment well and truly to be made to the said Isaac McNeile, his heirs, executors, administrators or assigns.

I the said Salmon Hummiston bind myself, my heirs, executors and administrators firmly by these presents sealed with my seal dated the first day of November A. D. 1794.

Whereas the above bound Salmon Hummiston hath this day agreed to do the inside joiner work to said Isaac McNeile's new house standing in said Litchfield, Northeast farms and to compleat the lower part of the old house which joins the new one and to finish the chamber flower and stairs of said old house.

Said new house is to be done in the following manner, to wit, in a good, genteel, fashionable manner. The lower South front room to be done in the following manner, to wit, with a good, decent breastwork around the chimney, with cupboards and closets as many as is necessary, with a mop board, chair rail and a cornish spring around the room and wainscot doors and to be lathed fit for plastering.

All the other rooms above and below to be done in the same manner except between the bedroom and kitchen which is to be ceiled on the kitchen side and lathed on the other.

The chamber to be done in the same manner.

The doors of the North room and North chamber to be made with six panels and all the other doors with four panels and good stairs from the bottom of the seller to the top of the garret and all the garret floors to be laid.

Said Isaac is to find the stuff necessary for the completion of the house, and to board said Salmon while doing said house, and said Salmon is to come any time with a fortnights warning. Said work to be compleated by the first of December A. D. 1795. The windows to be well cased all below the garret.

The said Isaac is to give said Salmon Thirty Pounds and Six Shillings. Six pounds of said sum to be paid in cash when the work is done, the remainder to be paid in neat cattle or grain, bulls and stags except one half of said sum to be paid when the work is done, the other half the following fall.

The condition of the above obligation is such that if the above bound Salmon does in all things well and truly keep and perform in manner and form as above written according to the true intent and meaning of the above parties the above obligation to be void, otherwise to remain in full force and life.

Signed and sealed in presence of
WILLIAM BARTLOW, }
ISAAC MCNEILE, JR., } SALMON HUMMISTON.

THE NEW YORK ART COMMISSION AND THE STREET-SIGNS.

NEW YORK, N. Y., October 6, 1902.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — My attention has just been called to your editorial on page 66 in the issue of August 30 of the *American Architect*, and I am led thereby to call your attention to the fact that the Municipal Art Society is a body entirely diverse from the Art Commission of the City of New York. The Charter of the City of New York gives no powers to the Municipal Art Society, but does give definite powers to the Art Commission, of which I have the honor to be a member appointed by Mayor Low. Under the Charter it was not necessary for the street-signs to be referred to the Art Commission, but the Mayor or the President of the Board of Aldermen had the right so to do, and they took such action, for which reason the matter of the street-signs has been before, and has been acted upon by, the Art Commission. Yours truly,

HENRY RUTGERS MARSHALL.

NOTES AND CLIPPINGS

THE CUNEIFORM TABLETS FROM NIPPUR. — Professor Herman V. Hilprecht of the University of Pennsylvania, who has been abroad a year and a half engaged in excavating, at the cost of the University, the buried city of Nippur, in Babylonia, has returned to Philadelphia. Professor Hilprecht believes the University expedition has accomplished the most important work so far done at Nippur. "We have unearthed 23,000 tablets," he said, "and I shall make the deciphering of them my life-work. The contents of these tablets will change the ideas of the world as to the state of civilization and knowledge of the early Babylonians. It will be seen that they knew in 2,300 B. C. that the earth was a globe, and that their astronomers took the same view of celestial phenomena as we now take. The inscriptions are in cuneiform characters. Their deciphering is a matter of much difficulty, for we have no Babylonian alphabet; we must not only translate, we must discover the alphabet, which is the key to the translation. Nippur is, in fact, sixteen cities, one built above the other. We have by no means reached the lower of these buried cities. Much of the temple library has been brought here, and is now in the museum of the University. Within the last four months our most important discoveries were made." — *Boston Transcript.*

THE TEXAS MISSION BUILDINGS. — A movement is on foot among the public-spirited women of Texas to preserve to posterity the old Missions of that State, which are fast falling into ruin. Daughters of the Republic of Texas they call themselves, and the various cities have chapters which devote themselves to local work, after the fashion of local chapters of Daughters of the Revolution and Daughters of the American Revolution in the North. The De Zavala Chapter, of San Antonio, is one of the most active of these, partly through the personal initiative of the president, Mrs. Adina de Zavala, who is most enthusiastic over the noble historic and artistic works of the self-sacrificing Franciscans, and partly because San Antonio is peculiarly rich in these interesting remains. Of the five Missions in the vicinity of San Antonio, one — the San José Mission — dates from 1690 and is considered the most beautiful on the continent. The carvings are by the artist Huicar, who was imported from Spain for the purpose of decorating the church. The façade is rich to repletion with virgins and saints, cherubs, sacred hearts, pedestals, canopies and cornices, while one of the windows in the baptistery is said to be the finest gem of architectural ornamentation in America to-day. Among the prominent persons interested in the preservation of these old ecclesiastical buildings is Miss Helen Gould. Miss Gould has expressed her interest by a handsome gift of money to the De Zavala Chapter. — *N. Y. Tribune.*

RESTORING THE FRESCOS ON THE PINAKOTHEK, MUNICH. — One of the uses for which the money recently refused by the Bavarian Parliament to Prince Luitpold is urgently needed is the restoration in some manner of the famous frescos by Kaulbach, Cornelius, Piloty, and other noted artists that adorn the Pinakothek and the Maximilianeum of the Bavarian capital. As all visitors to Munich have observed, these frescos, exposed as they are to one of the worst climates in Europe, are rapidly disappearing. After consultation with the best experts, the Bavarian Government has decided to reproduce these cartoons in mosaic so far as this is possible, and a beginning is to be made with those by Piloty. The cost will be something like $250,000. The offer of Kaiser Wilhelm to pay part of the expense out of his own pocket has so aroused Bavarian resentment that there seems to be no doubt about the money being forthcoming from private subscription should the Parliament persist in its refusal to contribute. All artists are agreed as to the necessity of prompt action. — *N. Y. Evening Post.*

THE "GRACES" ON THE NEW PALACE, POTSDAM. — The New Palace, says the London *Chronicle*, where the German Emperor entertained his distinguished manœuvre guests, is only "new" in the sense that New College, Oxford, is so; that is to say, it was new when it was built, about the close of the Seven Years' War. Frederick, whose Potsdam residence had hitherto been Sans Souci, determined to construct it to show his enemies that his finances had not been exhausted. The chief of these enemies were three women — Maria Theresa, the Empress Elisabeth and La Pompadour — and when his new palace was finished, Frederick, with bitter mockery, surmounted it with a crown supported by the nude figures of these three illustrious ladies, each with her back turned toward her own country. They are there to this day. Emperor Frederick, who was born and died in the palace, renamed it "Friedrichskron," though one of the first things done by his son, on succeeding him, was to decree the restoration of its old title.

DISCOVERY IN THE ROMAN FORUM. — Two tombs of great antiquity have been discovered in the Necropolis in the Forum early in the month of October. — *Exchange.*

HOUSES CARRIED SEVENTY MILES ON FLATBOAT. — While doing a bit of surveying in East Camden, N. J., Assistant City Engineer Sayre was surprised to find on a lot which was vacant on his last trip to that section two frame houses, 15′ x 24′, and three stories high. They were situated in Buren St., between Twenty-seventh and Twenty-eighth Sts., about 300 feet from the river. Having received no report from the city-clerk's office of a permit for the erection of the houses, and knowing that it was an impossibility to have built them in the time after his last visit, Mr. Sayre knocked on the front door of one of the houses. A German responded, and in answer to questions said that he and a fellow German, who owned the other house, had removed them to this city from Reading, Penn. A flatboat, he said, was used in transporting the houses down the Schuylkill, into and up the Delaware, a total distance of about seventy miles. — *N. Y. Tribune.*

THE CATHEDRAL OF GOTHENBURG. — The Cathedral of Gothenburg, "the Swedish Venice," which threatens to share the fate of the Campanile, is only a hundred years old. It burned down in 1721 and again in 1802. — *Exchange.*

SPONTANEOUS COMBUSTION OF SOOT. — A recent incident which occurred in Macon, Ga., shows the great danger from spontaneous combustion and how it will sometimes develop under the most unexpected circumstances. The soot and other refuse which had accumulated from cleaning a tubular boiler was thrown into a pile outside the boiler-house. A few hours later it was found to be on fire, and had it not been discovered in time would have set fire to the building. Upon investigation it was found that there could not have been any fire near the soot, but that there had been a slight rain followed by several hours of bright sunshine. The heat of the sun's rays aided by some chemical action in the soot itself must have caused spontaneous combustion. — *Fire and Water.*

VENETIAN WORKS OF ART. — In the province of Venice there are 1,111 art-works under the guardianship of a special committee, which however, has at its disposal only 13,500 lire, or about $2 a year for the preservation of each monument! — *N. Y. Evening Post.*

VENTILATION IN TUNNELLING. — For every cubic foot of air that was sent into the St. Gothard Tunnel a quarter of a century ago, 50 cubic feet are being introduced into the Simplon Tunnel. The mortality, in consequence, is much lower. — *Exchange.*

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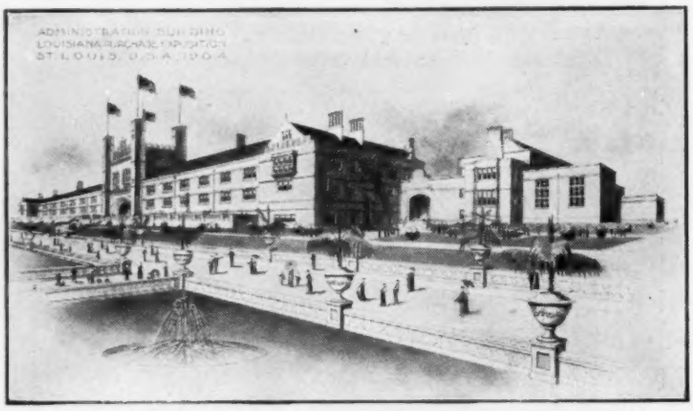
Topographical Index of Advertisers.

[*For pagination, see Alphabetical Index on Cover 2.*]

THE TEXTILES BUILDING.



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ARCHITECTS' REMOVALS, Etc.

MESSRS. LEHMAN & SCHMITT announce a change of offices to Rooms 623 to 627 The Garfield Building, 121 Euclid Ave., Cleveland, O. 1398

WANTED.

DRAUGHTSMAN.—Wanted, architectural draughtsman well up in scale and detail drawings. Only thoroughly experienced man need apply. Permanent position for such. Applicant state salary desired. "A. B. C.," care *American Architect.* 1399

BUSINESS FOR SALE.

I CAN SELL YOUR BUSINESS no matter where it is. Send description, state price, and learn how. Est.'96. Highest references. Offices in 14 cities. W. M. Ostrander, 1550 N. A. Bldg., Philadelphia. tf

BUILDING INTELLIGENCE.

(Reported for the American Architect and Building News.)

[*Although a large portion of the building intelligence is provided by their regular correspondents, the editors greatly desire to receive voluntary information, especially from the smaller and outlying towns.*]

ADVANCE RUMORS.

Adams, Mass.—The congregation of the Polish Church is considering plans for a $60,000 edifice.

Alexandria, La.—It is reported that this city has voted to issue $25,000 bonds for the erection of a city-hall.

Battle Creek, Mich.—It is stated that the Malta Vita Food Co. will erect a $25,000 office-building.

Birmingham, Ala.—The building occupied by Louis Sak's clothing store was destroyed by fire recently. It is proposed to rebuild at once.

Boston, Mass.—The plans for the addition to the Boston Athletic Association call for nine stories which will greatly add to the already dignified appearance of the club-house proper. The architects, Messrs. Sturgis & Barton, have treated the exterior to the end that the addition will harmonize perfectly with the main building. It will be of fireproof construction throughout, the staircase to be of iron and the floors deadened with concrete.

BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

This addition will be 48′ x 90′ in general dimensions and erected on the Blagden Street end.

A brick and stone mercantile building will be erected on Congress St., near the corner of Milk, to cost in the neighborhood of $500,000.

Brainerd, Minn.—A pulp mill and a paper mill are projected here. An outlay of $125,000 will be made at once for constructing a canal and dam. The plant, complete, will cost $700,000.

Brockton, Mass.—Plans for a new high school have been received from several architects, but the Public Property and School Committees have not yet been able to agree upon a selection.

Brooklyn, N. Y.—At a meeting of the local school board of Flatbush at Erasmus Hall it was resolved that the city was bound to erect a new building for Erasmus Hall, according to the terms upon which the property was accepted by the city in 1897. The board recommended that a building be immediately constructed, sufficiently large to hold an auditorium, library and laboratory rooms, with as many additional class-rooms as were practicable, but upon a plan comprehensive enough ultimately to include the tearing down of the present frame structures and replacing them with brick or stone buildings.

The general contract for erecting the brick, stone and terra-cotta theatre building, from plans by J. B. McElfatrick & Son, 1402 Broadway, has been awarded to T. G. Carlin, 215 Montague St. The building is to be fireproof. Dimensions, 50′ x 100′, and entire cost about $100,000. The site is the southeast corner of Willoughby and Pearl Sts.

Buffalo, N. Y.—The International Steam Pump Co. is reported to be about to build a brick foundry on Roberts Ave., near Clinton St., cost, $95,000.

A plant of 4 buildings is to be built on Military Road for the American Cabinet Co.; cost, $250,000.

It is stated that C. W. Goodyear is about to build a $23,000 barn at 874 Delaware St.

Cambridge, Mass.—Marked improvement is to be made in the property at the corner of Norfolk and Harvard Sts., by Michael O'Sullivan, the well-known contractor, who has just purchased the estate. He intends to erect a four-story brick

BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

building. The first floor will be divided into four commodious stores. Above, there will be nine apartments, three to a floor. The new building will cost about $25,000, while probably $5,000 more will be spent in improving the present building. The last named will very likely be enlarged, so as to accommodate six suites. Numerous bay windows will be added and the entire building will be improved and brought up to date.

Contractor Harris Manson has begun work on the new three-story brick and concrete manufacturing building, 100′ x 200′, to be erected in addition to their recent additions for the Simplex Electric Co.

Cheyenne, Wyo.—The plans of C. W. Murdock, of Omaha, Neb., have been accepted by the Capitol Comn. for the two-story brick mansion for the Governor.

Chicago, Ill.—Cass Gilbert, Endicott Building, St. Paul, Minn., has completed plans for a sixteen-story building to be erected on La Salle and Adams Sts., for the Continental Bank, to cost about $4,000,000.

Concord, N. H.—A fine brick and granite city-hall building will be erected in immediate future from plans furnished by Messrs. Warren, Smith & Biscoe, 120 Boylston St., Boston. Size, 96′ x 120′. Cost, $100,000. Building will include offices for all departments of local government. General contract not let.

Danbury, Conn.—The N. Y., N. H. & H. R. R. Co. will erect a depot here. C. M. Ingersoll, Jr., Ch. Engr., New Haven.

Deal Beach, N. J.—A. J. Manning, 7 E. 42d St., New York, has drawn plans for a $75,000 brick, stucco and Spanish tile-roofed cottage to be erected here for Alfred Nathan. The building will be 60′ x 150′, and three stories in height.

Gainesville, Ga.—J. W. Golucke, of Atlanta, is stated to have been selected to prepare plans for a school, to cost about $20,000.

Holyoke, Mass.—Architects G. P. B. Alderman & Co. are preparing plans for the erection of the proposed new building for the Harmonious Aid Society. Four stories, 120′ x 140′, brick and limestone, steam

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

heat, electric lights and all other improvements. Cost, about $70,000.

Lincoln, Neb.—Paul Bartlett will erect a four-story building, 90′ x 142′, to cost $40,000.

Lockport, N. Y.—Wm. E. Huston, Lincoln Building, has secured the contract for erecting the Y. M. C. A. Building for $30,000.

Marshalltown, Ia.—P. J. McCavick and A. B. Robinson have the contract for St. Thomas Hospital, at $30,000.

McKeesport, Pa.—The D. L. Clark Co., manufacturing confectioners, has decided to erect an eight-story building, 38′ x 146′, on 5th Ave., to cost about $150,000.

New York, N. Y.—A press report states that "President Cantor has received drawings made by Charles F. McKim, of the architectural firm of McKim, Mead & White, for a new municipal building on the lines laid down by Controller Grout. These plans provide first for the completion of the new Hall of Records. It is proposed by Mr. McKim that in Chambers St., alongside of this building, shall be erected a new City-hall. This will take the centre of the block, and will be connected with the Hall of Records. On the corner where the Stewart Building now is, and which is occupied by the Controller's, the City Chamberlain's and several other city departments, it is proposed that a county court-house be erected. This, in turn, will be connected with the City-hall, in the centre of the block. Connecting by a bridge with the City-hall, across Reade St., it is suggested that a large municipal building be erected, running through the block from Reade to Duane St., and having as its eastern boundary Elm St. By the erection of the new buildings it would make it feasible to do away with all the buildings in City-hall Park. The City-hall would not be removed, but would become a museum, the rooms being filled with relics and paintings, as the Governor's room is at present. The County Court-house, the old Hall of Records, the City Court and the old engine-house would be removed, making a spacious ground, with nothing but a museum in the park. There is no set amount estimated for the erection of these buildings, but about $12,000,000 is said to be a conservative figure. The subject will be brought to the attention of the city officials by President Cantor and he will endeavor to have action of some kind taken as soon as possible."

Benjamin M. Duke, who is said to be buyer of the lot, 27′ 2″ x 120′, at the northeast corner of 5th Ave. and 76th St., will erect thereon a handsome residence from plans by a Boston architect.

The Central Realty Co. has taken title to property at the corner of 79th St. and Amsterdam Ave. A twelve and a half story apartment-house to cost $750,000 will be built on the premises.

John Notman has sold a vacant plot at the northeast corner of 76th St. and 5th Ave., to James B. Duke. Mr. Duke will build a house for his own occupancy on the site.

It is proposed to add three, perhaps four, stories to the Episcopal Church Missions House, at 4th Ave. and 22d St. Dean Hoffman left by will $50,000 which he desired to have invested in real estate to the Board of Missions, which has charge of Church Missions House. That body finds its building an advantageous rental property, and is said recently to have decided that it could not better invest the dean's money than in the manner described.

Plans have been drawn by Herts & Tallant for a house to cost $750,000 for Isaac L. Rice, vice-president of the Holland Submarine Boat Co. It will be built at the corner of 89th St. and Riverside Drive.

The property at the southwest corner of 42d St. and Madison Ave., consisting of a four-story brick building, has been purchased by Andrew A. and Davison H. Smith, who will make extensive alterations and improvements to the building.

Plans have been filed at the building department for a new building to be erected at 31 and 33 E. Broadway for the New York public library, 40 Lafayette Pl. McKim, Mead & White, 160 Fifth Ave., are the architects, and the building will be 50′ x 67′, of brick and stone and to have all modern improvements. Approximate cost, $65,000.

Paterson, N. J.—The Board of Education here is making an effort to have the new State Normal School established in this city.

Philadelphia, Pa.—The Williamson Bros. Co., boiler manufacturers and engineers, have purchased the ground opposite their works, on which they will have erected five buildings, as an addition, to cost $100,000.

C. R. Siegel will soon begin work on an operation of 120 dwellings and 4 stores on the block bounded by Arch, Race, Farson and 51st Sts. They will all be of brick, two stories in height, with porch fronts, and will cost a total of $235,000.

Pittsfield, Mass.—Architect C. A. Perkins, 101 Milk St., Boston, will start plans at once for a telephone building to be erected on Pearl St., for the N. E. Telephone & Telegraph Co., 125 Milk St., Boston. The building will be of brick and stone, two stories high, contain offices on the first floor and operating-rooms on the second, and cost $17,000.

Portland, Me.—The new office-building for the Grand Trunk will cost $15,000 and will be built of red brick with granite trimmings. The building will face on India St., occupying that part of the lot at the corner of Commercial and India Sts. now taken up by the old station. It will be 40 feet wide. The general character of the new structure will be in keeping with that of the new station, and though the plans now have it with a nearly flat roof, a small tower or two may be added. Offices will be arranged for the steamship lines, custom-house officers and general railroad offices. Work on the structure will be commenced at once.

Princeton, N. J.—It is stated that the bequest to Princeton of Miss Mary J. Winthrop, of New York, will amount to $1,400,000. It probably will be used for the further development of the intellectual side of the seminary. It is also probable that a large gymnasium will be erected on the south side of the campus within the next two years.

BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

Providence, R. I. — Plans are being drawn by Architects Peabody & Stearns, 53 State St., Boston, for an eight-story brick addition, 100′ x 200′, to the block on Westminster and Fulton Sts., owned by the Providence Journal Co , Westminster and Eddy Sts.

Reybold, Del. — Baker & Dallett, Philadelphia, are said to have been commissioned to prepare plans for a handsome new residence for Henry P. Scott. The work will cost about $30,000.

St. Louis, Mo. — One of the best improved blocks in the city will be that bounded by Washington and Lucas Aves. and 11th and 12th Sts., upon the completion of the splendid commercial structure that the Carleton dry goods company is to build at the northeast corner of 12th St. and Washington Ave. The old buildings on the site are being demolished and the work of excavation will begin without delay. It is the intention of the builders to have the new structure ready for occupancy in about a year, and it will be one of the finest and best equipped commercial buildings in the city. The cost of the building complete is estimated at $400,000.

Application has been made to the building commissioner for a permit to erect a $40,000 building at the corner of Olive St. and Vandeventer Ave., to be used for stores. The building is to be partly three and partly one-story in height, and will be built as an investment by Daniel C. Nugent. The corner has never been improved and the building will add greatly to the value of real estate in the neighborhood.

Tarrytown, N. Y.—Miss Helen Gould contemplates building a club-house on her estate here for the exclusive use of the members of the Jackson Engine Co.

Watertown, Conn.—Architect J. J. Dwyer, of Hartford, has been selected to draw plans for a $25,000 Catholic church to be erected here.

Wayne, Pa. — F. T. McGuire has received plans for ten stores to be built here for A. Tolane. They will be designed by F. A. Guckert, and will each be three stories in height, 16′ x 52′ 8″.

Westfield, Mass. — D. W. Mellen, of Springfield, has been awarded the contract for the erection of the three-story brick dormitory, 100′ x 150′, at the Normal School. E. C. & G. C. Gardner, of Springfield, architects.

Worcester, Mass. — Work will start in immediate future on proposed addition to Odd Fellows' Home. Cost, about $40,000.

BUILDING INTELLIGENCE.

APARTMENT-HOUSES.

St. Paul, Minn. — *Nelson and Summit Pl.*, four-st'y bk. & st. apart., 67′ x 112′, gravel roof, steam; $60,000; o., M. J. O'Neil; b., C. P. Waldon.

FACTORIES.

Brookline, Mass. — *First St.*, four-st'y bk., st. & fr. manufacturing building, 124′ x 200′, steam; $100,000; o., W. L. Lockhart; a., W. H. Jones; b., J. M. & C. J. Buckley.

HOSPITALS.

Dorchester, Mass. — Two-st'y hospital, "Observation Woods," comp. roof, steam; $200,000; o., City of Boston; a., Wheelwright & Haven; b., Goodwin & Wester.

HOUSES.

Arlington, Mass. — *Broadway*, cor. Lyman St., 2½-st'y fr. dwell.; $5,000; o., Mrs. Myra A. Shaw, Magazine St., Cambridge; a., E. A. Snow, 8 Exchange Pl., Boston.

Brighton, Mass. — *Brooksdale Road*, nr. Allston Terrace, two-st'y fr. dwell., 27′ x 51′, shingle roof; $6,500; o., Florence O. Fuller; a., Geo. C. Parsons.

Brooklyn, N. Y. — *E. Thirteenth St.*, nr. Avenue C, two-st'y & attic fr. dwell., 28′ x 30′, shingle roof; $4,000; o., C. Ackerson, 297 E. 15th St.; a., B. Driesler, 13 Willoughby St.

Bath Ave., nr. Bay 16th St., two-st'y & attic fr. dwell., 22′ x 44′, shingle roof; $4,000; o., Izabell C. Carmichael, on premises; a., C. S. Haviland, 152 Bay 19th St.

Cambridge, Mass. — *Plymouth, Hamilton and Webster Sts.*, 3 three-st'y bk. dwells., 28′ x 40′, comp. roofs, steam; $30,000; o., J. Fineberg; a., Nathan Douglas.

Lawrence, Mass. — *Concord St.*, 4 four-st'y dwells., 26′ x 62′, comp. roofs; $30,000; o., Harris Berman; a., J. Ellis.

Minneapolis, Minn. — *Park Ave., No.* 2205, two-st'y bk. & st. dwell., 69′ x 72′, steam; $20,000.

Twenty-second St., cor. 1st Ave., two-st'y st. dwell., 55′ x 70′, tile roof, steam; $22,000; o., Chas. A. Pillsbury; a., Ernest Kennedy.

Newton, Mass. — *Park Ave.*, Ward 7, two-st'y dwell., 60′ x 62′, hot air; $15,000; o., B. W. Fredericks; a., Gay & Proctor.

Prince St., Ward 3, two-st'y dwell., 49′ x 49′, hot air or water; $11,000; o., H. G. Rube, Boston; a., Chapman & Frazer; b., L. Martin & Co., Boston.

Prince St., Ward 3, two-st'y dwell., hot air or water; $11,000; o., Chas. Gleason, W. Newton; a., Chapman & Frazer; b., L. Martin & Co., Boston.

Allerton Road, Ward 5, two-st'y dwell., 30′ x 33′, hot air; $6,000; o., W. O. Evans; a., Gay & Proctor.

BUILDING INTELLIGENCE.

(*Houses Continued.*)

Marshall St., Ward 6, two-st'y fr. & st. dwell., 44′ x 54′, steam; $11,000; o., A. A. Tilney; a., H. F. Briscoe; b., Porter & Roberts, Cambridge.

Hammond St., Ward 6, two-st'y fr. & st. dwell., 56′ x 59′, combination heat; $40,000; o., Stephen L. Bartlett, Newton Centre; a., Chas. Bingham; b., W. B. Saunders, Newton Lower Falls.

New York, N. Y. — *Park Ave.*, nr. 181st St., 4 two-st'y bk. dwells., 20′ x 50′; $20,000; o., Thomas F. Costello, Bedford Park; a., Moore & Landsiedel, 148th St. & 3d Ave.

Davidson Ave. and One Hundred and Eighty-fourth St., 7 three-st'y bk. & st. dwells., 17′ x 40′, comp. roof, hot air; $55,000; o., H. U. Singer; a., Henry Anderson, 1183 Broadway.

Oskaloosa, Ia. — Two-st'y fr. dwell., 40′ x 45′, comp. roof, steam; $5,000; o., George Lewis; a., F. E. Wetherell.

St. Paul, Minn. — *Iglehart St.*, nr. Dale St., two-st'y fr. dwell., 26′ x 44′; $5,000.

Worcester, Mass. — *Chandler St.*, two-st'y fr. dwell., 26′ x 61′; $6,000′; o., M. A. Beaman, 51 Murray Ave.; a., W. H. Harvey, 311 Main St.

LIBRARIES.

South Hadley, Mass. — One-st'y bk. & st. library, 53′ x 67′, tile roof, hot water; $25,000; a., Putnam & Cox, 6 Hancock Ave.

MERCANTILE BUILDINGS.

Bangor, Me. — Three-st'y bk. & granite business block, 30′ x 76′, gravel roof, hot water; $20,000; o., Stetson Estate; a., W. E. Mansur.

Cambridge, Mass. — *Franklin, Sidney and Auburn Sts.*, three-st'y concrete manufacturing building, 100′ x 200′, steam; $60,000; o. & a., Simplex Electric Co.; a., Horace Manson.

St. Paul, Minn. — *Tenth and Cedar Sts.*, two-st'y & base. bk. manufacturing building, 60′ x 90′, gravel roof, steam; $20,000; o., D. R. Noyes; a., J. W. Stevens.

STABLES.

Minneapolis, Minn. — Two-st'y fr. barn, 74′ x 74′, comp. roof, steam; $27,500; o., M. W. Savage; a., C. S. Sedgwick.

New York, N. Y. — *W. Twenty-ninth St., No.* 546, two-st'y bk. stable & store, 25′ x —, tar & gravel roof; $4,000; o., Wm. Braugan, 548 W. 29th St.; a., Thos. H. Styles, 449 W. 28th St.; b., Jas. Buckley, 754 Eighth Ave.

Bergen Ave., nr. Rose St., six-st'y bk. storage & stable, 50′ x 90′, tar & gravel roof; $20,000; o.,

BUILDING INTELLIGENCE.

(*Stables Continued.*)

Theodore J. Chabot, 794 E. 148th St.; a., Albert Rothermel, Bergen Ave., n e cor. 148th St.

W. One Hundred and Thirty-third St., No. 308, four-st'y bk. stable, 25′ x 90′; $12,000; o., J. E. Graybill, 327 W. 126th St.; a., F. S. Robinson, 39 Hancock Pl.

STORES.

Brooklyn, N. Y. — *Fourth Ave.*, cor. 57th St., four-st'y bk. store & base., 20′ x 90′, steam; $12,000; o., J. Green, 53 State St., Boston, Mass.; a., H. L. Spicer, 326 Fifty-sixth St.

Cambridge, Mass. — *Green St., No.* 257, one-st'y bk. store, 75′ x 90′; $10,000; o., Chas. H. Pratt; a., J. A. Hasty.

TENEMENT-HOUSES.

New York, N. Y. — *Cannon St., Nos.* 115-117, six-st'y bk. tenement & stores, 41′ 6″ x 87′; $40,000; o., Hershkovits, Roth & Klein, 21 W. Houston St.; a., Bernstein & Bernstein, 111 Broadway.

Ninety-fourth St., nr. Riverside Drive, six-st'y bk. & st. tenement, 75′ x 87′ 8″, slag roof; $85,000; o., Wm. Rankin, 119 W. 77th St.; a., Hy. Andersen, 1183 Broadway.

One Hundred and Sixty-fifth St., nr. Broadway, five-st'y bk. tenement, 20′ x 105′ 1″; $22,000; o., John A. Picken, 548 W. 165th St.; a., John Hauser, 1961 Seventh Ave.

WAREHOUSES.

Boston, Mass. — *Summer St. Extension*, opp. C St., South Boston, two-st'y storage building, 235′ x 853′, comp. roof; $40,000; o., Boston Molasses Co.

MISCELLANEOUS.

Brooklyn, N. Y. — *Railroad Ave.*, cor. W. 12th St., one-st'y fr. exhibition building, 148′ x 180′, gravel roof; $20,000; o., Sea Beach Land Co., 56 Wall St., N. Y.; a., T. W. Thompson, 56 Wall St., N. Y.

Muscatine, Ia. — Three-st'y bk. Y. M. C. A. Building, 60′ x 100′, comp. roof, steam; $35,000; a., Frank E. Wetherell, Oskaloosa.

New York, N. Y. — *Thirtieth St., Nos.* 325-327, three-st'y bk. & st. building for city baths, 50′ x 99′ 9″, asphaltic cement roof; $75,000; o., Mrs. E. M. Anderson, 6 E. 38th St.; a., Chas. A. Rich.

COMPETITIONS.

COURT-HOUSE. [At Walker, Minn.]

Plans and specifications will be received by the Bd. of Co. Comrs. **until October 28** for a court-house to be erected in this city, and **until October 29** for erecting said building. C. E. GRIFFITH, Co. Aud. 1399

PROPOSALS.

WALLS. [At Parkersburg, W. Va.]

U. S. Engineer Office, Wheeling, W. Va. Sealed proposals for building lock walls and guide walls for dam No. 18, Ohio River, about four miles above Parkersburg, W. Va., will be received here **until October 30, 1902.** Information furnished on application. W. E. CRAIGHILL, capt., engrs. 1398

MILL BUILDINGS. [At Tallulah, La.]

Bids will be received **until October 22** by the Madison Planters' Cotton Oil Co. for erecting mill buildings in this city. J. M. JOHNSON, pres. 1398

SEWER. [At Marion, Ind.]

Bids are wanted **October 21** for constructing a sanitary sewer. C. G. ROBBINS, city clk. 1398

SCHOOL. [At Reedsburg, Wis.]

Bids are wanted **October 20** for erecting a high school. JOHN D. DEVOR, clk. 1398

COURT-HOUSE. [At Nogales, Ariz.]

Bids are wanted **October 23** for erecting a court-house. PHILIP HEROLD, clk. 1398

BUILDING. [At Richmond, Va.]

Bids will be received by the Penitentiary Bldg. Com. **until October 23** for erecting a cell building: building to be of steel and concrete, containing 336 steel cells, steam heating and electric lighting plant, plumbing and mechanical ventilating system. GEO. W. LE CATO, chmn. P. Thornton Marye, archt., 1st Nat. Bank Bldg., Newport News, Va. 1398

BUILDING. [At League Island, Pa.]

Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, **until October 18, 1902,** for constructing a brick and steel building for a foundry and coppersmith shop for steam engineering at the navy yard, League Island, Pa. Plans and specifications can be seen at the bureau. MORDECAI T. ENDICOTT, chief of bureau. 1398

SEWER. [At Cincinnati, O.]

Bids will be received by the Bd. of Pub. Service **until October 28** for improving a portion of Linwood Ave., by constructing a trunk sewer and drains. GEO. F. HOLMES, clk. 1399

BUILDINGS. [At Fort Snelling, Minn.]

Bids are wanted **October 25** for erecting several buildings at this post. GEO. E. POND, Ch. Q. M., St. Paul, Minn. 1399

SCHOOL. [At Stockton, Cal.]

Bids will be received by James A. Barr, clk. of high school bd., **until October 30** for erecting a high school. Estimated cost, $100,000. 1399

EXTENSION TO BUILDING. [At League Island, Pa.]

Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, **until November 1, 1902,** for constructing a brick and steel extension to building No. 14, angle smithery, at the navy yard, League Island, Pa. Appropriation now available, $12,500. Plans and specifications can be seen at the bureau. MORDECAI T. ENDICOTT, chief of bureau. 1399

Treasury Department, Office of the Supervising Architect, Washington, D. C., October 4th, 1902. Sealed proposals will be received at this office until 2 o'clock P. M. on the 10th day of November, 1902, and then opened, for the erection and completion of the U. S. Government Buildings, Louisiana Purchase Exposition, St. Louis, Missouri, in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Director of Works, St. Louis, Mo., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1399

Treasury Department, Office Supervising Architect, Washington, D. C., October 4th, 1902. Sealed proposals will be received at this office until 2 o'clock P. M. on the 5th day of November, 1902, and then opened for the mezzanine floor extension, Mail Street End, Registry Division, U. S. Court-house and Post-office building, New York, N. Y., in accordance with the drawing and specification, copies of which may be obtained at this office or at the office of the Chief Engineer & Superintendent of Repairs, U. S. Public Buildings, New York, N. Y., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1399

ADDITION TO HOSPITAL. [At Fort Hunt, Va.]

Office of Constructing Quartermaster, Fort Washington, Md. Sealed proposals will be received at this office **until October 20, 1902,** for constructing frame additions to post hospital, Fort Hunt, Va. Plans and specifications furnished on application. GEO. H. McMANUS, constructing quartermaster, U. S. Army. 1398

ROADWAY. [At Dover, Tenn.]

Quartermaster's Office, New Orleans, La. Sealed proposals for constructing roadway to National Cemetery, Dover, Tenn., will be received here and at office of superintendent **until October 17, 1902.** Information furnished on application. C. D. V. HUNT, Q. M. 1398

HEATING. [At Fort Riley, Kan.]

Fort Riley, Kan. Sealed proposals will be received here **until October 20, 1902,** for changing the heating of buildings from central to individual plants. Information furnished upon application to this office, also at offices of depot quartermasters, Chicago, Ill., St. Louis, Mo., and Omaha, Neb. Envelopes to be indorsed "Proposals for Changing Heating of Buildings," addressed CAPT. G. O. CRESS, Q. M. 1398

BUILDING. [At Watertown, Mass.]

Watertown Arsenal, Watertown, Mass. Sealed proposals will be received here **until October 23, 1902,** for erection of barrack building complete, exclusive of cellar excavation and stone footing, at this Arsenal. Separate proposals are also invited for all other walls and stonework, omitting roof and all woodwork, and for plumbing, heating and gas fitting. Information can be had on application to LT.-COL. JOHN G. BUTLER, Ord. Dept., Comdg. 1398

BUILDING. [At Amarillo, Tex.]

U. S. Department of Agriculture, Office of the Secretary, Washington, D. C. Sealed proposals will be

PROPOSALS.

received by the secretary of agriculture **until October 20, 1902**, for the erection of a two-story and cellar frame building for the weather bureau, U. S. Department of Agriculture, at Amarillo, Tex., in accordance with plans and specifications, which may be obtained at the office of the chief of the weather bureau, Washington, D. C., and at the weather bureau office at Amarillo, Tex. JAMES WILSON, secretary. 1398

ADMINISTRATION BUILDING.
[At Fort Rodman, Mass.]

Office Constructing Quartermaster, 209 Thames St., Newport, R. I. Sealed proposals will be received here **until October 22, 1902**, for constructing, plumbing and wiring frame administration building, constructing and wiring frame quartermaster's and commissary storehouse, and constructing frame ordnance storehouse and frame coal-shed, at Fort Rodman, New Bedford, Mass.; information furnished on application. CAPT. THOMAS H. SLAVENS, Qr. Mr. 1398

BARRACK BUILDING.
[At Fort Meade, S. D.]

Office of Chief Q. M., St. Paul, Minn. Sealed proposals will be received at this office **until October 18, 1902**, for the construction of one double barrack at Fort Meade, S. D. Plans and specifications may be seen and blank proposals with full instructions, had upon application here, or to the Quartermaster, Fort Meade, S. D. GEO. E. POND, C. Q. M. 1398

Treasury Department, Office of the Supervising Architect, Washington, D. C., September 27, 1902. Sealed proposals will be received at this office until 2 o'clock P. M. on the 12th day of November, 1902, and then opened, for the safety vaults, vault-doors and work incidental thereto, in the U. S. Mint, Denver, Col. (new building), in accordance with drawings and specification, copies of which may be had at this office, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1399

Treasury Department, Office of the Supervising Architect, Washington, D. C., September 29, 1902. Sealed proposals will be received at this office until 2 o'clock P. M. on the 4th day of November, 1902, and then opened for a conduit and electric wiring system for the U. S. Public Building at Cheyenne, Wyo., in accordance with drawings and specification, copies of which may be obtained at this office or at the office of the Superintendent of Construction at Cheyenne, Wyoming, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1399

OFFICERS' QUARTERS.
[At Fort Myer, Va.]

Sealed proposals for constructing officers' quarters will be receive here **until October 18, 1902.** Information on application. CAPT. W. F. CLARK, Qr. Mr. 1398

JAIL.
[At Jefferson, Ga.]

Proposals are wanted **until October 21** by the county commissioners for erecting a jail. 1398

QUAY WALL.
[At Bremerton, Wash.]

Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, **until October 25, 1902,** for constructing an extension of the concrete wing wall, navy yard, Bremerton, Wash. Estimated cost, $16,000. Plans and specifications can be seen at the bureau or will be furnished by the commandant of the navy yard named. MORDECAI T. ENDICOTT, chief of bureau. 1398

Professional Ethics.

The following . . .

. . . CODE OF ETHICS . . .

Prepared in Conformity with the Best Standards of Practice, and Recommended to its Members by the Boston Society of Architects, was . . . . . .

ADOPTED BY THE SOCIETY, FEBRUARY 1 . . 1898. . .

SECTION 1. No Member should enter into partnership, in any form or degree, with any builder, contractor, or manufacturer.

SECTION 2. A Member having any ownership in any building material, device or invention, proposed to be used on work for which he is architect, should inform his employer of the fact of such ownership.

SECTION 3. No Member should be a party to a building contract except as "owner."

SECTION 4. No Member should guarantee an estimate or contract by personal bond.

SECTION 5. It is unprofessional to offer drawings or other services "on approval" and without adequate pecuniary compensation.

SECTION 6. It is unprofessional to advertise in any other way than by a notice giving name, address, profession, and office hours, and special branch (if such) of practice.

SECTION 7. It is unprofessional to make alterations of a building designed by another architect, within ten years of its completion, without ascertaining that the owner refuses to employ the original designer, or, in event of the property having changed hands, without due notice to the said designer.

SECTION 8. It is unprofessional to attempt to supplant an architect after definite steps have been taken toward his employment.

SECTION 9. It is unprofessional for a Member to criticise in the public prints the professional conduct or work of another architect except over his own name or under the authority of a professional journal.

SECTION 10. It is unprofessional to furnish designs in competition for private work or for public work, unless for proper compensation, and unless a competent professional adviser is employed to draw up the "conditions" and assist in the award.

SECTION 11. No Member should submit drawings except as an original contributor in any duly instituted competition, or attempt to secure any work for which such a competition remains undecided.

SECTION 12. The American Institute of Architects' "schedule of charges" represents minimum rates for full, faithful and competent service. It is the duty of every architect to charge higher rates whenever the demand for his services will justify the increase, rather than to accept work to which he cannot give proper personal attention.

SECTION 13. No Member shall compete in amount of commission, or offer to work for less than another, in order to secure the work.

SECTION 14. It is unprofessional to enter into competition with or to consult with an architect who has been dishonorably expelled from the "Institute" or "Society."

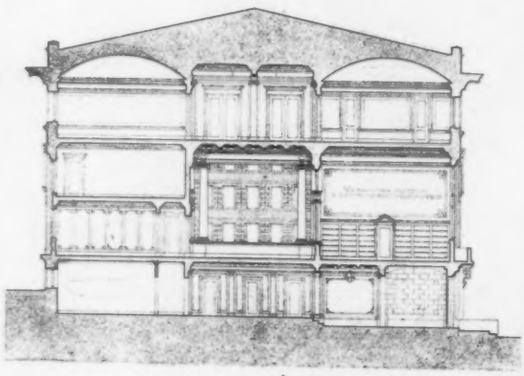
SECTION 15. The assumption of the title of "Architect" should be held to mean that the bearer has the professional knowledge and natural ability needed for the proper invention, illustration and supervision of all building operations which he may undertake.

SECTION 16. A Member should so conduct his practice as to forward the cause of professional education and render all possible help to juniors, draughtsmen and students.

[*See Alphabetical Index on Cover 2 for Pagination.*]

CLASSIFIED ADVERTISEMENTS.

[Advertisers can be indexed only under a single head free of charge.]



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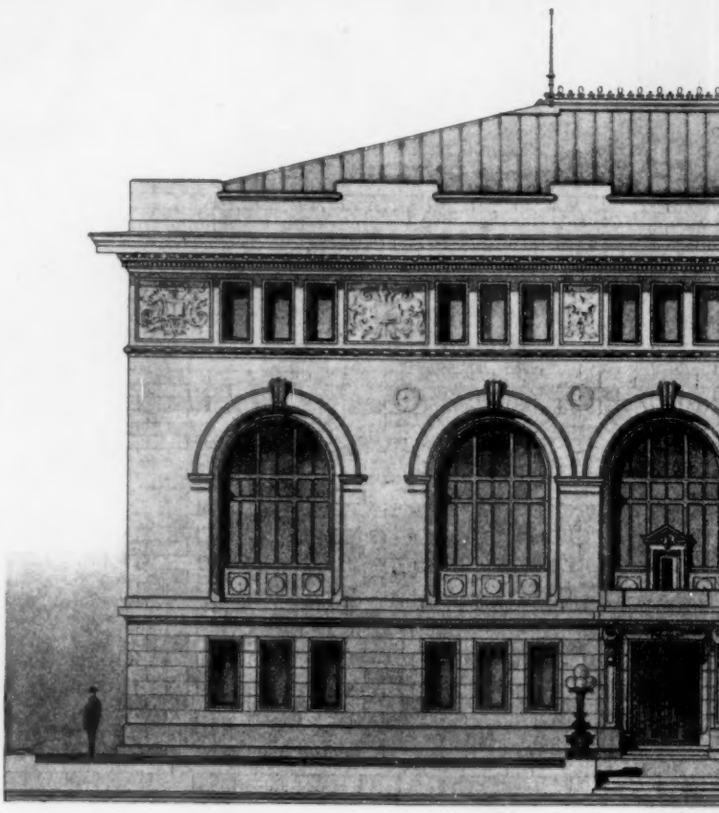
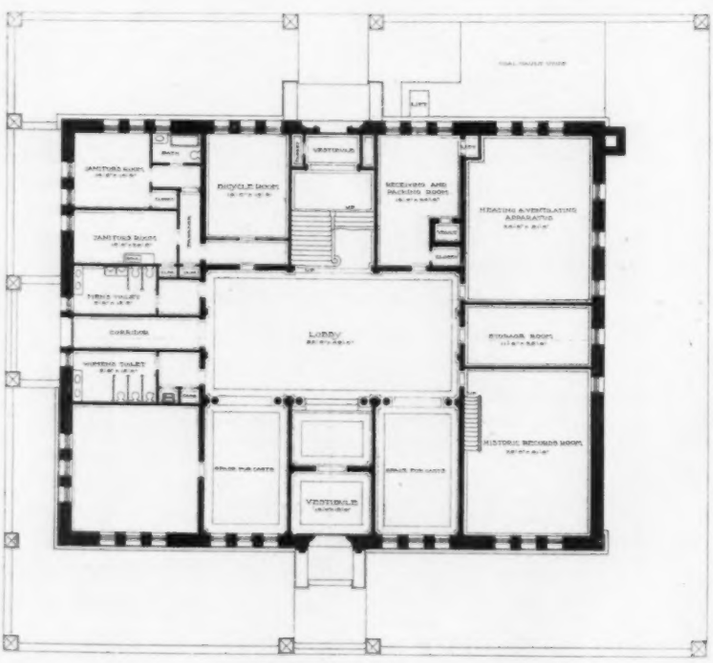
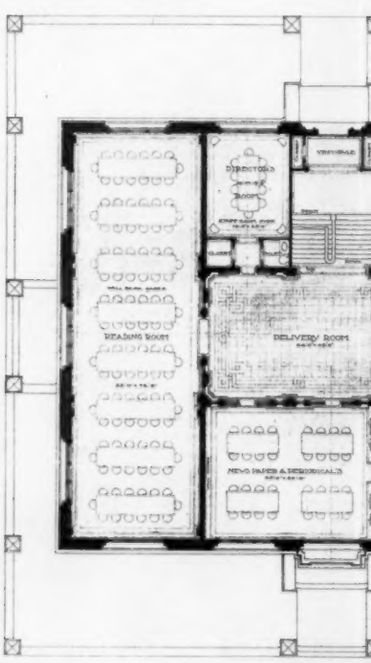




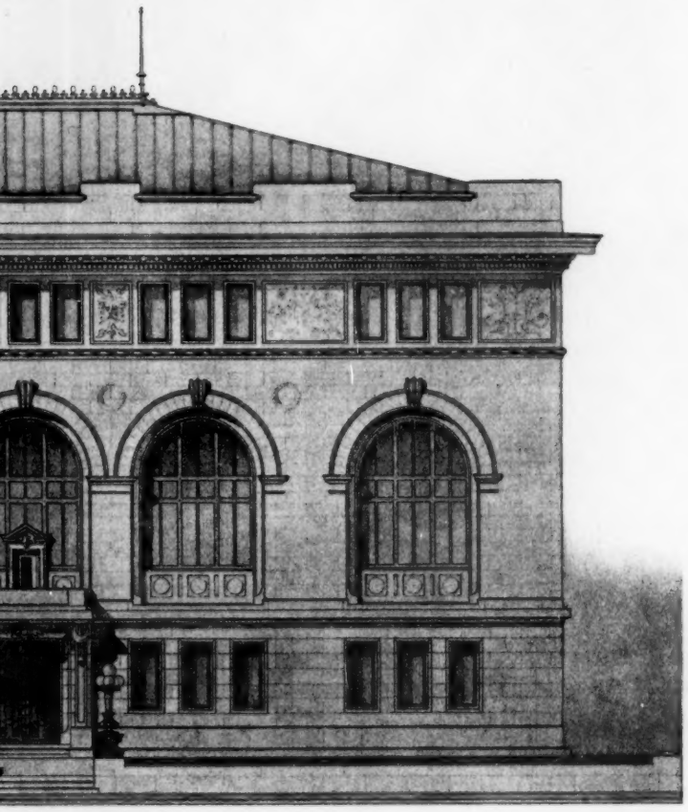
BASEMENT PLAN

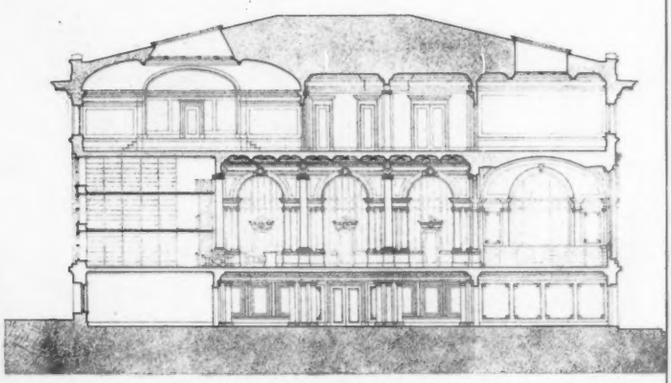


FIRST FLOOR P

A COMPETITIVE DESIGN FOR THE CAR

FERRY & CLAS,





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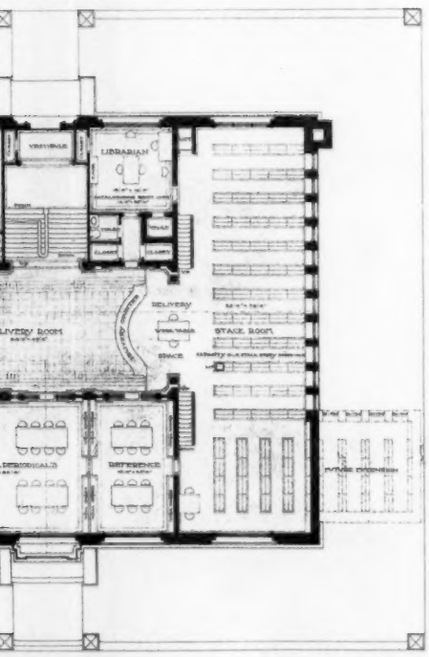

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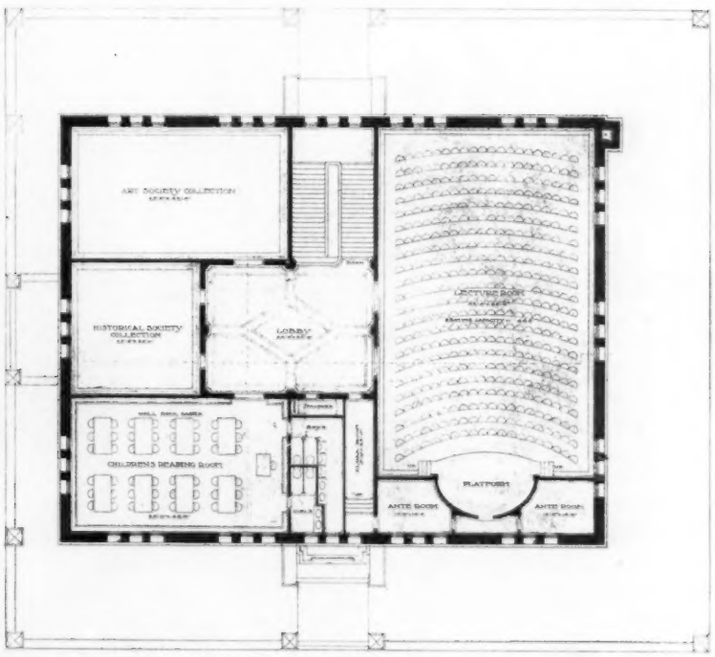


SECOND FLOOR PLAN

THE CARNEGIE LIBRARY, NASHVILLE, TENN.

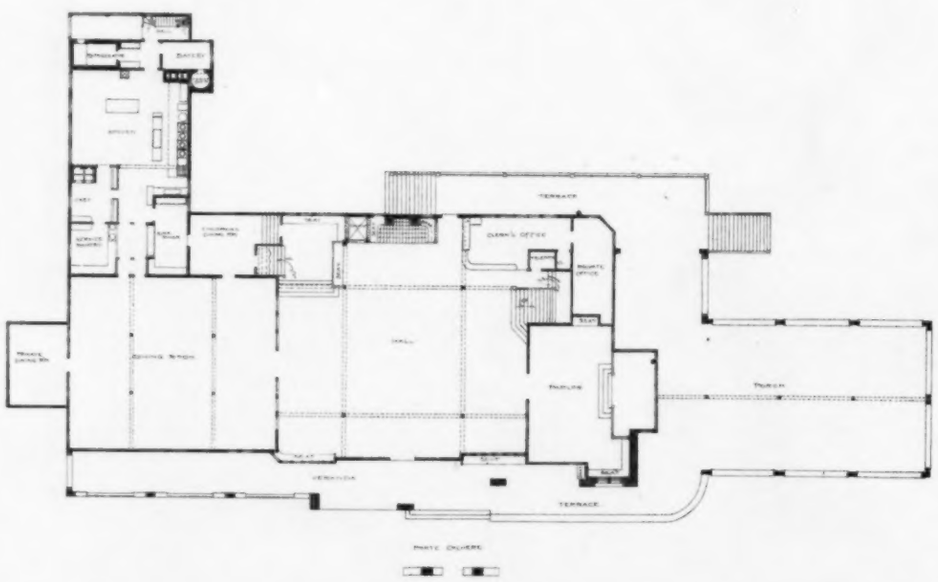
Y & CLAS, ARCHITECT.

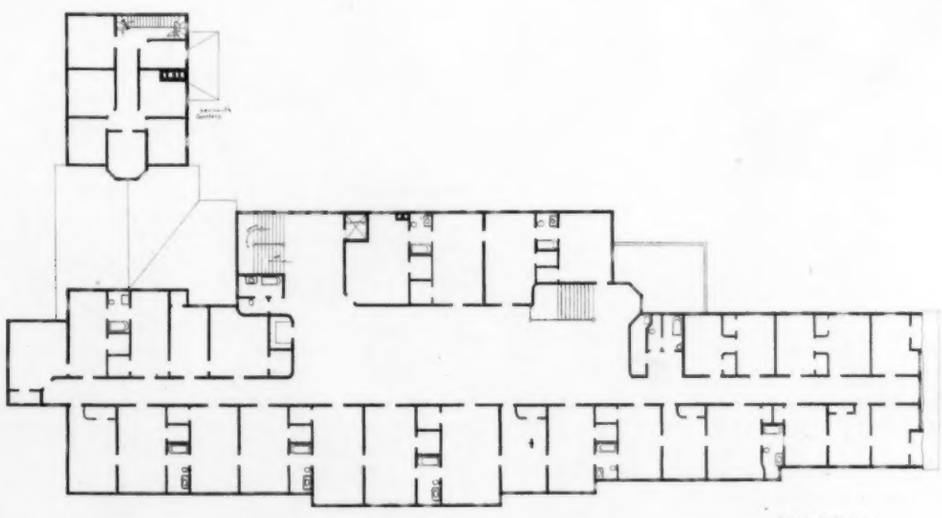
THE COURT YARD: HOUSE OF E. ROL

OGDEN CODMAN, J

OF E. ROLLINS MORSE, ESQ., NEWPORT, R. I.
N CODMAN, JR., ARCHITECT.

Owned by the "Warwick Inn" Co. War





The American Architect
Oct. 18, 1902.
No. 1399.