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NOTES AND CLIPPINGS.

AMERICANS are characteristically so prompt that it occasions no surprise to learn that in various quarters memorials of the late unpleasantness with Spain are not only projected but are being pushed by their promoters with such activity that some of them will probably be brought into being. The one which is as likely as any to have an actual existence is a grand triumphal arch, of more than ordinary dimensions and magnificence, to adorn some spot in Chicago — perhaps some spot already hallowed by the one-time pressure of the foot of that descendant of Columbus, the Duke of Veragua, whose vogue with Americans has been somewhat dimmed by later remarks of his. In this same general connection, we note that the *Baltimore Morning Herald* revives the suggestion that it is time there should be built at Washington what it is pleased to call a "Valhalla," wherein the ashes of the nation's good and great may rest, and by the aggregated essence of their lives' histories, here symbolized by bronze and marble statue, epitaph or urn, do much to create in coming generations that spirit of emulation upon which all progress and civilizing processes depend. As a mere matter of imperishable record, of course, the properly printed biography in the libraries of the world is superior to and will outlast all the valhallas this generation can create, but the age is in a large sense a pictorial age and demands a kind of picturing that can be easily seen and comprehended. The idea of a national mausoleum has been frequently suggested and it has so many good points about it that it will some day be carried into effect, and perhaps this is as good a juncture for taking the matter up as could be found, because, for one reason, such a structure demands a site of preëminent natural suitability and if there still be such a site in Washington it is not likely long to be left unimproved when there are so many schemes in the air for making our capital city really architecturally grand and impressive. But such a scheme is not to be entered on thoughtlessly and without due prevision of, and provision against, the many disagreeabilities that will certainly eventuate. This being America, it can be taken for granted that, if the people really will to have a Valhalla, a good site and an abundance of money for the erection of a really befitting structure can be readily obtained, and, if the people are willing to exercise a little patience and not demand immediate execution, after the fashion in which an order for the erection of a play-house is filled, probably the artists capable of designing the structure can be found. But, the building ready, what shall be done with it, how shall it be filled, whose ashes shall rest therein? These are questions which it will be uncommonly hard for such a democracy as ours, with its penchant for doing, undoing and doing over again, to settle.

WHAT honored remains shall here be stored? Shall all of our chief magistrates be placed here as a matter of course and the traditions that now lend historic grace to Mt. Vernon, Springfield, Monticello, Nashville and elsewhere be disrupted and transferred to Washington? Shall Johnson and Pierce and Buchanan be honored equally with Washington and Lincoln simply because of having served their fellow countrymen for a term in the Presidential office? Shall Alger lie here simply because Stanton must? Shall Murphy and Platt and perhaps Croker and Morrissy stand before posterity on equal footing with Sumner, Webster, Clay and Calhoun? The situation has its difficulties and, if we know anything of the manner in which this country is misgoverned, the difficulties we here suggest are not imaginary ones, but are very real. Who is to decide on these matters and at what moment is the decision to be made? For precept or example, the mind naturally turns to Westminster Abbey, which shelters so many names honored by our race, and still finds room for more, and, but for the occupancy by some unworthy of the honor, could for long years find room within its fabric for the really illustrious without calling on that Campo Santo that Mr. Pearson has designed as an addition to the building, and without causing that separation and classification between the Abbey and St. Paul's which has now been going on for a good many years, a separation of which a good many are ignorant. Roughly speaking, it is now the habit for sepulture in St. Paul's to be granted to military and naval heroes and to those who have achieved fame in the arts, while statesmen and writers are, if deemed worthy, provided with a niche in the Abbey. In both cases popular acclaim, the people's verdict, has something to do with the decision; but the matter in one case really rests with the Dean and Chapter of the Abbey and in the other with the Bishop of London and Dean and Chapter of St. Paul's, while the Queen's command is sufficient to override any hesitancy on the part of the ecclesiastical authorities. But we have no queen and we have no established church of which the dignitaries could be charged with the guardianship of our temple of fame. It seems, then, likely that the whole matter would rest with Congress either to formulate a general prescription or, what is more likely and certainly more American and democratic, to vote in open session on each case as it arises, and one knowing the composition of Congress and the mental calibre of too many of our legislators can easily picture what the result of these political suffrages would be likely to be.

QUITE apropos of this Pantheon movement comes a rumor that Spain is, in the final treaty with this country, to insist on the right to remove from Havana Cathedral to Spain the remains of Christopher Columbus, and it would not be entirely out of keeping with some of our passed performances if this country, too, should claim the discoverer's remains to do honor to the national valhalla, and by so doing set on foot a conflict to which the Homeric battle over the body of Patroclus should be as nothing. It is interesting to recall that even after his death Columbus has been a bit of a traveller: twice, perhaps thrice, were his ashes buried in Spain, once they rested in Santo Domingo and of late years they have halted in Havana, and now seems likely to come another order to "move on."

INDIRECTLY connected with this matter is one which has given us some concern, and that is the selfishness of the present generation and its too great disregard of the rights of the generations that are to follow. The moral and ethical unrighteousness of our public acts does not here concern us: that can be left to theologians, moralists and dialecticians, but we do have a right to consider the obliquity of our acts as it affects art and architecture. Unfortunately, within very wide bounds, a man can do what he pleases with his own and there is no accepted means by which a modern philistine can be prevented from running up on the choicest of sites in six months' time an architectural abomination, so well built, so huge, so costly and, alas! so profitable as an investment that it is sure to vex the sane and more healthily artistic souls of our descendants for an unknown time. Little can be done to cure this wrong, and the slow growth — slow as compared with the rapid execution of these builded crimes — of public understanding affords but a feeble palliation, so we must, if we can,

shut our eyes, yielding to owner and architect our hearty contempt. But in matters over which the interested public should exercise control far too little is exercised. Still some attempts are making in different places, and nowadays it is not everywhere possible for a rich man of vulgar turn of mind to secure to himself notoriety and newspaper applause by giving to the public any piece of so-called art that suits his purse or his barbaric fancy. To a limited extent the establishment in some cities of Art Commissions has had an ameliorating effect, and in these cities works of public art are likely to be fairly good—good that is for their time and generation. But we fancy that it has not occurred to any of these art commissions that it was not perfectly proper for them to place permanently in the very best site at the moment unoccupied the artistic object that happened to be under consideration by them. Such ill-considered and inconsiderate acts as these we hold to be not only immoral but a crime against unborn generations which men in their position have no right to commit.

BUT shall these choice sites be left unoccupied? Shall the citizens of to-day be deprived of the pleasure and improving influence of seeing set upon them the best works of the best artists of their own time? Not by any means. Let them all be occupied as soon as reasonably fitting subjects can be found, but let the permanency of tenure depend on other things than the whim, perhaps, of the commissioners who recommend the expenditure of public money that pays for them. At the time the New York Art Commission was to be brought into being through the new charter, we privately urged this idea on the men who had it in hand, and though our advice was unheeded we have not lost confidence in its real wisdom or in the entire practicability of carrying it into execution. To our minds the proper course to be taken in the procurement of works of art intended for the adornment of public places and buildings is simply this: In case an art commission sees fit to recommend the purchase of a work of art of any kind, it shall be purchased and placed in the desired position for a term of years depending for its length on the unanimity of the advising body: if a mere majority vote decided the matter, then the term of tenure should be shorter than if the vote were unanimous. As each term of occupancy expires the question of extending the term shall be discussed and the object in question can be retained in place if it has pleased the public who own it, or it can be removed to another site so as to give place to a more desirable subject, or finally it can be placed in retreat if the *vox populi* has condemned it. In no case, however, shall permanent occupancy of a position be accorded by the same men or, better still, by the same generation, who, as a majority, controlled the original purchase. The pertinency of the suggestion can be gauged by any one who will ask himself how many of the statues, monuments and so on in Boston, New York, Philadelphia or in any large city he would leave in their present positions if he had the power to remove them. Many are good for all time, some have served a good purpose to some degree, while very many never had a purpose and could never have served it if they had ever had one. They manage those things better in France, and the observant traveller will often find that, between his visits, some work of art he remembers has been moved from its accustomed place, and inquiry will disclose that it is quite as likely that it has been dismounted and permanently stored in the cellars, yards or galleries of the Garde Meuble as that it has been sent out of Paris to improve the more bucolic minds of the Provincials. What a chamber of horrors, to complement the suggested Valhalla, we could fill to repletion by removing to its abyssal vaults such artistic abominations as the "Cogswell fountains" and statues like the "Bolivar" in Central Park, the "Colonel Cass" in the Boston Public Garden, and some of the alleged paintings in the Capitol at Washington!

THE international committee charged with the examination of the designs sent in for the Phœbe A. Hearst Architectural Plan for the University of California seeks to assuage the anxiety of the competitors by sending out from Antwerp, in three languages, the announcement that a decision must not be expected until October. Seemingly a good many designs must have been sent in, since the City of Antwerp has been called on to furnish housing for the drawings in one of its fireproof warehouses. In addition to the security thus afforded the drawings are also covered by insurance.

THE deplorable effects of incompetence and mismanagement, due, as is alleged, to some man or men in our War Department, may or may not be palliated by the fact that they occurred during the confusion and shifting conditions due to a state of active war. It is said that the system of Departmental action is excellent, and that if there had been no war all the processes dependent on it would have gone on like clockwork. Whether a war department should work smoothly only in time of peace does not concern us to inquire, but the recent investigation into the management of the South Kensington Museum seems to show that even in peaceful times a military bureaucracy is capable of creating a most bewildering spectacle of incompetence. This vast and most important institution is very largely under the charge of military men, Sir John Donnelly, the present head of the institution, being a Royal Engineer and having under his charge many other military men, assigned to duty as his assistants. Architects are familiar with the quality of esteem in which civil engineers hold both themselves and one another, but perhaps they do not know that the civil engineer is but a middle term between the military engineer and the rest of mankind: the complaints one sees in the engineering journals which the civil engineer lays against his military brother are often very amusing reading. Although the military engineer is, doubtless, a highly trained and educated man, he has his limits, but, apparently, no limit has been found for his belief in the legitimacy of nepotism, for at South Kensington it is found that in a total staff of seven hundred and seventy-four there are one hundred and sixty men who are interrelated, there being not less than seven men in the superior staff, out of a total fourteen, who can claim kinship with one another. Where nepotism in any degree exists, one cannot but suspect the presence of inefficiency, and where it exists to such a degree as this the results are likely to be both great in quantity and astoundingly variegated in quality and kind. As might be expected, the Scientific Department has been conducted properly, since engineers are nothing if not scientific, the vagaries appearing mainly in the Art Department, and here they range all the way from costly purchases of the most impossible of forgeries to the most childish of blunders in cataloguing. The parliamentary investigation brought out the fact that there is no junior member of the library staff who knows a word of German and, judging from citations from the catalogues, there is at command a very feeble acquaintanceship with other languages than English. Now if they are good for anything engineers should know something about screw-threads, diameters, capacities of pipes and so on, yet it appears that these efficient gentlemen, who must know, as well as the rest of the world knows it, that the buildings at South Kensington are mere fire-traps, have fitted the buildings under their charge with hydrants, hose and other apparatus of which the couplings do not correspond with those used by the Metropolitan Fire Brigade, so that in case of an actual outbreak of fire the none-too-efficient public fire apparatus could not furnish the best aid it is capable of rendering. Curiously enough, as we finished this paragraph, we took up *Engineering* and found in a communication, apropos of another matter altogether, the following quotation of a saying that is rife in the German army:—

"Ein Pionier, dass ist, ein Mann
Der Alles weiss, doch gar Nichts kann."

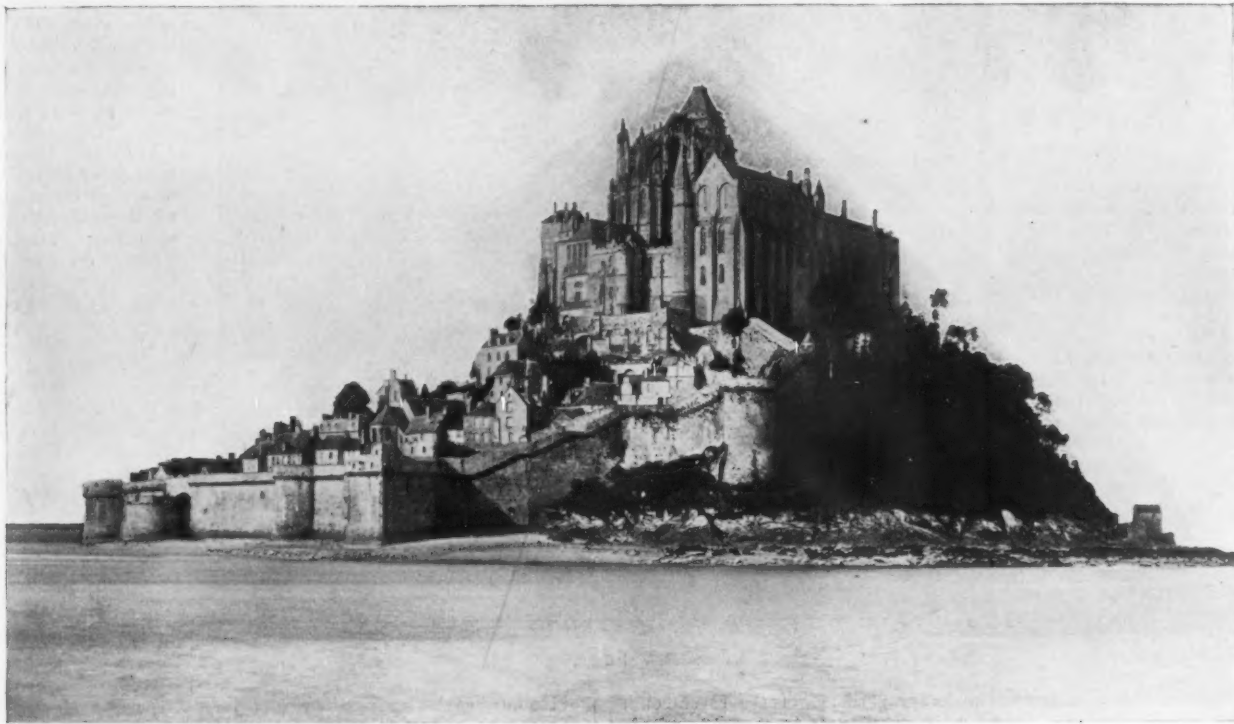
"Pionier," in English, means Royal Engineer.

THE friendly suit over the interpretation of the will of Benjamin Franklin, upon the settlement of which turned the disposal of the trust fund and its accumulations, now amounting to nearly half a million dollars, has at length been decided by the full bench of the Supreme Court of Massachusetts in favor of the City of Boston. As there seems no clear reason for carrying the matter before the Supreme Court of the United States the matter will probably rest here and the city will now be able to make use of the trust fund to promote the ends had in view by the far-sighted philanthropist. In all probability the fund will be used for the erection and equipment of a trade-school, of which there is much need, and we trust that the entire fund—none too large for the purpose—can be used for this purpose, as the city can easily afford to pay the running-expenses once the institution is built and equipped. It would be interesting to know whether, during the last seven or eight years of litigation, the fund has actually increased or whether the annual interest has been consumed by legal expenses and counsel fees.

AN ARCHITECTURAL "SUMMER SCHOOL" ABROAD.¹—IX.

[PROFESSOR HOMER sends us word that the pressure of private work upon him is so great that it leaves him no time for repairing the punctures in his interesting account of the bicycle trip through France, and begs us to excuse him from completing the tale. Nothing can be done save to

drawing-paper. In the evenings long walks were taken on the sands, as it was the season of low tides. The magnificent effects of the setting sun on the ancient walls and the glorious views of the sunsets from the walls themselves will long be remembered. Mont St. Michel was a climax to which we had unconsciously looked for-



The Town and Monastery of Mont St. Michel.

grant his request; but as a much briefer account of the trip has been printed in the *Technology Quarterly*, we are able to finish the story by reprinting the account of the last days of the trip as it appeared in that publication. Our readers will, of course, miss the expansion of the architectural description and the many additional illustrations which it was the intention to give.—EDS. AMERICAN ARCHITECT.]

ALL eyes were now turned toward Mont St. Michel, and we hoped to see the great rock from the top of the cathedral at Coutances, but as the horizon was hazy the first glimpse was obtained two days later, as we passed over the hills at Genets on the northern shore of the bay on the way to Avranches. We could, however, see Granville from the top of Coutances Cathedral directly over the tower of St. Pierre, and late in the afternoon, after a quick ride over excellent roads, we arrived in time to take a refreshing afternoon bath in the blue waters of the Atlantic.

At Mont St. Michel, after wheeling along the causeway and passing the gauntlet of hotel criers, we were comfortably housed at the Poulard Aîné, taking the whole of the Maison Blanc for our quarters. A delightful two days was spent in this famous place. Thanks to our permits from the French Government, the keys of the monastery were given us and we could wander at will from the dark dungeons cut in the solid rock to the rich flying-buttresses of the Gothic church. Sketches were made in the Salle des Chevaliers, and during the quiet afternoons many bits of picturesque stonework were transferred to the

ward, and our parting cheer for the Poulard Aîné closed a very pleasant section of our summer trip.

The country south of this resting-place is, for architectural students, somewhat bare and uninteresting. With the exception of occasional bright spots, it was passed over without incident. Fougères possesses an enormous castle of which the outer walls alone remain; but its high walls and numerous towers, and the surrounding old portions of the town, are very picturesque. The greater part of the mediæval walls are now destroyed, but in the lower part

of the city the old gate is one of the few remaining fragments of this ancient and strongly fortified town.

But as a town Vitré is far more interesting than Fougères, its splendid château and fine old houses making it even more attractive than Lisieux. While possessing several streets lined with picturesque wooden houses, it also seems to be a very prosperous modern place, quite in contrast to the slumbering towns visited in Normandy. The château entrance is very striking and original. One passes over the drawbridge spanning the wide moat and enters a fairly spacious open court, containing at the farther end a picturesque little building decorated with a good oriel window of Renaissance design. We



Salle des Chevaliers, Mont St. Michel.

tried to obtain a measured drawing of this window, but as it is just back of the modern prison-wall we found that the city authorities had to be consulted. The red tape encountered proved to be too much for our short visit. At Vitré the hot weather seemed to set in earnest and we again changed our riding hours, avoiding the hottest part of the day.

¹ Continued from No. 1178, page 28.

On Sunday, after attending service for a short time at Notre Dame, a Gothic church with a beautiful outside pulpit, a small party wheeled over to the little village of Champeaux, and felt well repaid for the hot ride while visiting the château and church formerly belonging to the Chevalier de l'Epinay. The château still possesses its wide moat, but the surrounding walls have almost entirely disappeared and the whole place is overgrown with trees. Although the church is about one mile away, tradition says that the buildings are connected by an underground passage used by the family in troublesome times. We certainly saw the top of stone vaulting in the driveway of the château, and were told that a hole in the wall, in the crypt of the church, was the other end of the tunnel, but the deep valley and rocky hills lying between the two buildings made us sceptical about the connecting links.

Leaving Vitré early on the morning of the 13th we soon reached the Château des Rochers, famous as the residence of Madame de Sévigné, and for its gardens planned by Lenôtre, the most famous landscape gardener of the seventeenth century.

We now had two of our longest rides before us, through a country that presented little that was interesting in the way of varied scenery. Village after village was passed on our morning ride to La Guerche, where we rested during the hottest hours of the day. The afternoon run would have been uneventful if we had not unexpectedly seen the façade of the church at the little village at La Roë.

This was our first taste of the rich Romanesque architecture of Anjou and gave us a good idea of the dignified designs common to the southwestern part of France. There are, undoubtedly, some drawbacks to touring by bicycle, but the finding of this architectural gem, in such a little, out-of-the-way place as the village of La Roë, made up for all the inconveniences of our ride on that very hot day.

We then pushed along, up and down the rolling hills and even grades of the great national road, travelling due east in a straight line until Château Gontier was reached. In fact, so accustomed to regular and monotonous leg-work did we become that some of us ran through the town and five kilometres beyond before realizing that we had passed our stopping-place for the night. This was the hottest day and the longest ride of the trip, but we felt quite refreshed after a swim in the sluggish and not too clean waters of the Mayenne.

The 14th proved to be about as hot as the preceding day. Making an early start, the party divided, some taking the direct national road to Angers and others going on a venture about five miles out of the way to see the château at Chemazé. We were amply repaid for the side journey, for this château possesses some of the best early Renaissance detail. It was our first building of this character and we were soon busy with our cameras. Although we arrived at eight in the morning, and the owner was then at home,

we easily obtained permission to visit the larger rooms, thoroughly enjoying our glimpse into the well-arranged half-modern, half-ancient interior. The square tower is particularly beautiful in detail and, combined with the transitional dormers, makes an unusually rich façade for a country house. We climbed the winding tower staircase, admiring the delicate interior carvings as we went, and from the top obtained a fine view of the wide rolling country across which we were travelling.

Leaving Chemazé with many regrets, we wandered through the winding country roads, surprising numerous flocks of geese as they fed by the roadside, until we at last met the great national road. Then it was push up hill and coast down the other side, mile after mile, riding directly south under a broiling sun, until at last we reached the down grade that told us we were in the valley of the Loire and that Angers was not far off.

Our arrival at Angers closed a period of fatiguing riding. We had travelled ninety-six miles in two days, pushing our heavily loaded wheels along monotonously straight roads that seemed to reflect an enormous amount of heat from their white surfaces. We were, therefore, glad to rest for a day or two at the comfortable "Cheval-Blanc," even although Angers did not prove to be as rich in ancient and interesting architecture as we had hoped. The photograph clearly shows the splendid surface of this great road and the rolling, almost level, character of the country. It was taken about ten miles from Angers. The distance from the turn near the horizon to the top of the hill in the foreground was exactly six kilometres, according to the government measurements indicated on the kilometre stones at the side of the road, and it ran over five hills in that space of three and three-fourths English miles.

Among the modern buildings of the prosperous city of Angers only a few relics of the older time still remain. The ancient Tour St. Aubin, now standing alone among the commonplace houses of the modern streets, was once a part of a great monastery which covered a large section of the city. Another fragment of the monastic buildings was discovered some years ago when a wall in the Préfecture was torn down. To-day this mutilated arcade, enriched with early almost barbaric sculpture, is perhaps one of the richest examples of decorative work of the Romanesque period, and is carefully treasured by the city and national authorities. In contrast to this primitive work, the delicate Renaissance detail of the Hôtel Pincé (1535) furnishes the other extreme. Situated in the business part of the city, near the post-office and theatre, it still retains its small garden, which pushes it back from the general line of the shop fronts. Its delicate carvings now seem entirely out of place with its changed surroundings.

But the most interesting building in Angers, from a constructional point-of-view, is the Cathedral of St. Maurice, commenced in the eleventh century, as it is one of the transitional examples showing



West Facade of Church at La Roë.



Hôtel Pincé, Angers.

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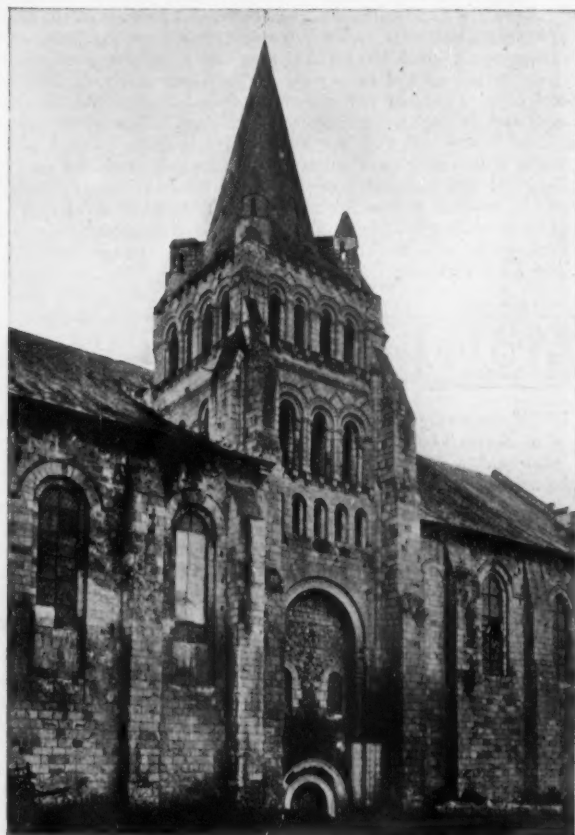
the beginning of the change from the domical vaulting found in cities a little farther south to the developed vaulting of the northern cathedrals. Several photographs were taken to illustrate the peculiarities of its interior, but on account of the uncertain light they were not entirely successful. Angers also possesses a few quaint streets and



Prehistoric Dolmen, Gennes.

old modern houses, but much has long been destroyed by the fires that from time to time have swept the town.

Our stay at the "Cheval-Blanc" was so thoroughly enjoyable, after the indifferent hotels of the towns through which we had passed, that about half the party decided to remain in safe quarters, and later on take the shortest road instead of running the chance of a wetting by starting early in the morning of the 16th. The adventurous half only succeeded in reaching the outskirts of the city when the rain descended and the floods came upon us. But we were fortunate enough to escape a thorough drenching by taking refuge in a large modern church, storing our bicycles in an old corn-mill near by. After a tiresome wait we donned our rubber capes for the first time and ventured to ride through the flooded streets, quite enjoying the



Church at Treves-Cunault.

experience until the mud thrown by the rear wheels began to creep up our backs and over our heads, as mud will fly even with careful riding. The sun coming out, we were soon forced to discard our capes on account of the heat and travel slowly until the roads were fairly dry. We then had a delightful run over the winding country

roads, through vineyards and wet fields, on the way from Brissac to Gennes.

Lunching at Gennes and afterwards climbing the side of the valley to look at its old prehistoric dolmen, a little way out of the town, we were soon running over a smooth and almost level road along the left bank of the Loire. That was a most remarkable afternoon's ride, for the numerous small villages passed, each with its old Romanesque church and quaint old houses stretching along the river banks, gave us a foretaste of the rich architectural treasures of the Loire valley. Cunault is, perhaps, the richest of these churches, since it possesses a beautiful tower or primitive spire that is quite in contrast to the plain walls of the other parts of the church. The capitals and paintings of the interior are also particularly quaint and grotesque.

E. B. HOMER.

(To be continued.)

UNDERPINNING OF ST. MARY WOOLNETH, LONDON.



From the Hoftheater, Vienna, Austria.

OUR illustrations, Figs. 1, 2, and 3, show a very interesting piece of engineering which is at present being carried on in the heart of the city. This is the underpinning of St. Mary Woolnoth Church, which is at the junction of Lombard Street and King William Street, and which faces on to the open space upon which the Mansion House, the Royal Exchange, and the Bank respectively abut. The work also includes the construction of a station beneath, with a large shaft, in which elevators will work up and down below the church floor. Great changes are going on just here at the present time, although the man in the street has little knowledge of them, for they are beneath his feet, and out of sight.

The radical change which is taking place in the constitution of the old City Church is rendered necessary by the extension of the City and South London Railway northwards. In 1893 the railway company obtained an Act of Parliament to construct an extension of their line which at the present time runs from the Monument to Stockwell. This extension was to carry them northward to the "Angel" at Islington. The plan was to cross the river by another tunnel on the east side of London Bridge, to proceed up King William Street—always, of course, at a considerable depth beneath the surface, for this is a deep-tunnel railway—past the Bank of England, up Princes Street, then by way of Moorgate Street, Finsbury Pavement, and the City Road towards the north, terminating at a spot near the Agricultural Hall; although doubtless at a future time powers would be sought to carry the line beneath the High Street, Islington, so as to bring it in touch with the North London Railway at Highbury Station. Stations were to be made at London Bridge, Moorgate Street, Old Street, the City Road, and the "Angel." The Lombard Street Station is the one we have more particularly to deal with here, and it will be situated right under the church.

The Act of 1893 gave the company power to acquire the Church of St. Mary Woolnoth, to pull it down, and construct the station upon the site. The works, however, were not commenced within the time allowed in the bill, and an extension of time was sought for in the year 1896. Parliament then imposed the condition that the church was to be upheld, but gave the company the right of using the subsoil and constructing their station underneath the church. Fig. 1 is a section of the church, showing the girders for supporting the walls and the four groups of columns. Fig. 2 shows a plan at the station-floor level, and the bed-plates and foundations for the stanchions supporting the main girders. The large shaft shown in both

illustrations is 73 ft. 6 in. by 24 ft., and in this will be placed electric lifts together capable of accommodating about 350 passengers. The two station-tunnels under King William Street are 21 ft. in diameter, and are lined with cast-iron rings. They are for the up and down lines and platforms, and are constructed about 100 ft. below the street. These are shown in dotted lines. Both platforms are approached by stairs from the passages communicating with the bottom of the lifts shaft. Fig. 3 is a section through the centre line of the lifts shaft, and shows the outside walls of the church columns supporting the roof, and the tower at the west end.

The work of supporting the church previous to sinking the shaft is now complete, and has been accomplished without the slightest damage of any kind to the structure. In carrying out the work the four main girders, designed to support the four groups of columns which carry the roof, were fixed in the positions shown in Fig. 1, and small needle girders were then threaded through the bases of the columns. On piercing the bases for this purpose, however, it was discovered that the heart of the work was not of solid stone, as had been believed, but of a very inferior description of brickwork, with only a casing of stone from 6 inches to 9 inches thick. It was therefore found necessary to place a continuous sheeting of steel joisting under the whole area of the bases, to tie the loose mass of brickwork together and equally distribute the weight upon the needle girders. This proved to be a very tedious operation, as only a very small part of each base could be attacked at a time. The steel joisting underneath the bases is shown in Fig. 1 in dotted lines, and is also indicated in the section.

Having completed this part of the work, the south wall on the King William Street side was next undertaken. The wall was pierced at intervals of about 5 ft., and strong needle girders were fixed through the wall, one end resting on the solid stone on the outside, and the other tied down to one of the main girders supporting the columns. Sufficient of the inside of the wall was then cut away to allow of the girder (which had been built before the needles were fixed) being slid into position, and to allow of a 14-inch blue brick wall being built, carrying short lengths of bearing girders, which were wedged tight up to the needles. The object of this was to reduce the overhang of the needles, when the outer portion of the wall should be cut away, as no reliance could be placed upon the old work. After the inside girder had been fixed, steel wedges and packings were inserted between the top of the girder and the needles, the wedges being driven up tight to insure that the whole of the weight was being carried by the girder and the blue brick wall before referred to. As the girder was designed to permanently carry only half the wall, it was assisted by timber packings below. After the wall had been pinned up above the girder, and everything made solid by grouting, the work of fixing the outer girder was comparatively easy. The outer half of the wall below the needles was cut away, care being taken not to jar the structure any more than necessary; and the girder, which had meanwhile been built, was moved into position on its bearings. The whole of the weight—roughly about 350 tons—was then taken by the two girders, and as the timber packings under the inner girder were removed, the folding wedges below the needles were driven up to take up the deflection as the weight came on. When the wall under the girders was cut away the blue brick wall was left in and supported on the lower flanges by cross-joists at intervals, the spaces between the webs of girders being filled-up solid with cement grout.

For supporting the north wall on the Lombard Street side, the same method as that adopted for the south side was not possible, as in this case the work could not be taken in hand from the street. One main girder was, therefore, designed to carry the whole weight; but as it could not safely be placed far enough under the wall to be in a position to do this, suspended needles were attached to support the outer part of the wall, the tail ends being tied down to one of the girders for supporting the roof columns. In carrying out the work much the same means were adopted as on the south side. Needle girders were fixed just below the church-floor level, under cover of which the wall was cut away to allow of the girder being fixed. After the wall had been securely pinned up above the girder the suspended needles were put in one at a time, and the intervening masonry held up by cross steel joists placed on top of needles.

The deflection of the girders has in every case been taken up by a system of folding steel wedges which were driven up as the old foundations were cut away and the superincumbent weight taken by the girders. Grouting under air pressure has been largely employed in the work, especially in filling-up any interstices between the girders and the old masonry, and the success of the operation has been in a great measure due to this. The girders are supported on steel-work stanchions resting on large bed-plates formed of steel joists and plates, placed on a bed of concrete of a minimum thickness of 3 ft. All the girders, stanchions, and bed-plates are filled-in solid with breeze concrete and grout, and will, further, be cased in the same material outside to guard against any deterioration through neglect of painting in the years to come.

The oblong shaft shown will be lined with cast-iron segments for a depth of 52 ft. from the top; and the remaining 28 ft., in which will be formed the entrances and the exits to and from lifts, will be lined with brickwork. Cast-iron struts will be placed in the positions shown every 8 ft. in depth.

The church will be restored—with, of course the exception of the crypt—as when possession was obtained a year last May, the church entrance being in the same place. Entrances to the station booking-

hall under the street will be constructed at the northwest and southwest corners of the church, and from thence passengers proceed to lifts which will be placed in each side of the church entrance. One large exit into King William Street will adjoin the Lombard Street Post Office.

The engineers for this difficult and important work are Sir Benjamin Baker, Messrs. David Hay and Basil Mott. The resident engineer is Mr. James Forgie, and the contractors are Messrs. John Mowlem & Co. — *Engineering*.

THE DURABILITY OF WATER-COLORS.



COMMITTEE of the Burlington Fine Arts Club was formed in 1895 to test the lasting qualities of certain water-colors, and it has just issued its report on this interesting subject.

Four pigments—madder carmine, madder brown, madder purple and sepia—were exposed to dry air for thirteen months and showed no change. After an exposure of three years in the dry air there was some notable fading. The madder carmine and madder brown had "lost ten per cent of their original depth," and the madder purple and sepia "about 20 per cent." Two pigments exposed to the dry air, Prussian blue and indigo, were unchanged, but when they had been exposed in ordinary frames had depreciated from 15 to 90 per cent, losing their depth of color. The committee thinks that by the use of ventilating frames water-colors can be better preserved. In proof of this it was found that pigments in closed tubes had deteriorated more than when these colors had been painted on paper slips and exposed in frames. A frame should, so the committee believes, be so constructed that while "the moisture-laden air can escape, no dust can enter." The airtight frame is, then, likely to harm a water-color, and it was thought "that the introduction of some moisture-absorbing substance" would be effective. The plan proposed is to modify the construction of the ordinary glazed frame by the introduction "of a wire-gauze cartridge charged with small bits of freshly burnt lime, which will remove continuously all moisture enclosed between the front glass and the thin metal sheet which will have to serve as a backboard." The lime in the cartridges would have to be renewed from time to time. Unfortunately, this method, though advantageous to such colors as aureolin, rose madder, Indian red, madder carmine, madder brown, madder purple, Prussian blue, French blue, indigo, sepia and cadmium yellow, does not do for gamboge, Indian yellow, vermilion, crimson lake and Vandyke brown. The committee proposes making further tests of the durability of water-colors, exposing some of these in a room where there are all the differences of light, and another set in a dark room, keeping the tests under the same conditions for four years. In a table are printed the results of exposure in frames under ordinary circumstances and in dry air of the seventeen water-colors in general use. Those in the dry air seemed to suffer the least and changes and fadings were sensibly diminished. The whole subject is a difficult one and well worthy of careful study. Think of the regrets of the owner of a Turner who sees its golden gleams pass out of existence! and just such a glorious water-color of Turner's is to-day one of the gems of a New York gallery. We should think that the use of lime would require great precautions, for an atom of it coming accidentally in contact with paper would burn or deface the picture. — *New York Times*.

BOOKS AND PAPERS.

SINCE reviewing the two first volumes of Messrs Bell's "*Cathedral Series*"¹—Salisbury & Canterbury, the publishers, have sent forth a perfect quiverful of these useful little handbooks. In the matter of arrangement the later volumes² are better than the earlier ones, inasmuch as the plans are all to be found at the ends of the books, instead of in uncertain places. It is not simply necessary, in a series of guides, that the volumes should be of the same size and bound in the same style, they should also follow the same plan of arrangement; and in most respects these little books fulfil these conditions. We find the chapters mostly in the following order: History of the Church: Exterior; Interior; The Sees and Their Occupants; The City; and lastly, and most conveniently at the end of the volumes—The Plan of the Church. All that is wanted to complete the books is an index; there is a list of contents, but an index is a far handier arrangement. The monographs being intended as guide-books of a better class than those formerly found in the cities, the easier one finds one's way about them the better; but they are also valuable as books of reference, for there is an immense amount of information of all kinds to be culled from them. All the divers authorities upon the different churches have been put into requisition as well as architects, archaeologists and historians, and only to mention such names as Freeman, Willis, Fuller, Leland, Britton, Murray (Handbooks) and the editors of the series, Messrs Gleeson White and Edward F. Strange, is sufficient to vouch for the care with which the work, as a whole, is carried out.

¹ See *American Architect*, No. 1113.

² Bell's "*Cathedral Series*," Norwich, Hereford, Rochester, Peterborough, Chester, Winchester, Oxford, Lichfield, Exeter. 1s. 6d. each.

The authors are not reticent in criticising the doings of restorers. James Wyatt, that arch vandal, would naturally get his deserts in these modern times; but it is refreshing to find the author of the Lichfield volume sufficiently courageous to speak of so recent a restorer as Sir Gilbert Scott as a fabricator of "cheap statuettes and Italian trumperies." The writer notes the signs of the times as proving that these things are as objectionable as Wyatt's beloved Roman cement, and that future restorers will not be allowed "under any circumstances to lay a finger on what it has here and there graciously pleased their forerunners to leave unspoiled," even to gain a "vista," which was Wyatt's craze. Well, let us hope this may be so; but even now that great renovator and rebuilder, Lord Grimthorpe, yet lives and flourishes.

Probably few of the cathedrals suffered more than Lichfield. It was a city within itself — the close and church — and being, for its security, surrounded by walls and gates, it was positively stormed by the Commonwealth party under Lord Brooke. Being "strangely tainted," says Dugdale, "with fanatic principles and schismatical preachers (though in his own nature a very civil and well-humored man), he became thereby so great a zealot of the established discipline of the church that no less than the utter extirpation of Episcopacy and abolishing all decent order in the service of God would satisfy him." And so he marched on the city, prayed for success, and set up his big guns. But looking out of a window hard by, he was struck by a bullet, which, says the account, "only lodged in his brains, whereupon he suddenly fell down dead." This occurred on the 2d of March, the festival of St. Chad, the bishop to whose memory Offa, King of Mercia, dedicated his new church. However, the siege was continued and the building was all but destroyed, including the central spire. The three spires of Lichfield form its distinctive feature, being the only existing example in England.

The illustrations are mostly from photographs; but in a few cases old prints and original drawings by architects have been reproduced, which enhances the interest of the volumes.

The beautiful reredos of Winchester has been completely restored, with the exception of the central crucifix. Most of the saints in their niches are gazing upwards, but at present the object of their adoration is a vacant space — the Protestant party protested most effectually against the representation of Our Blessed Lord upon the cross — in stone; windows do not matter: the transparency renders the design innocuous; but a stone picture is quite another matter, so the space remains, and the stone saints must gaze at their Master only spiritually.

The weak point of an English cathedral is the west front. Many are mere screens or walls built up regardless of the nave and aisles behind, such as Salisbury. Winchester has mean little doorways, Lichfield being vastly superior; its central porch is fine, although small. Peterborough, though beautiful in itself, has nothing whatever to do with the church. Exeter is a low screen with three small doors. The west doorway of Rochester is a magnificent example of Norman work, but the rest of the front is unbeautiful. When one thinks over the west fronts of the French churches, one realizes the pooriness of the English ones. Only to cite the originality of Chartres with its open portico; of Rheims with its three magnificent portals; of Troyes, Paris, Rouen and Amiens — how superior in beauty of detail and harmony of idea are these French fronts! The towers grow from the ground and form a part of the front; there is no sham screen; no clapping-on of a wall with saints in niches to hide the end of the building: all is harmony of idea and completeness of construction and detail. On the other hand, the great feature of the English churches is the mass of Norman work yet remaining. Builders of all periods have substituted the style of their own time for their original work; but few of the churches which were built by the Normans have lost all trace of their skill; some, like Salisbury, were entirely re-erected, either on the same spot or elsewhere; but in spite of the Mediæval and Renaissance Grimthorpes, a vast number of the cathedrals contain much of the finest twelfth-century architecture, and, had it not been for the restorer, we should enjoy still more.



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

SENATE READING-ROOM: LIBRARY OF CONGRESS, WASHINGTON, D. C. ARCHITECTS, MESSRS. SMITHMEYER & PELZ; P. J. PELZ; E. P. CASEY.

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

LEND-A-HAND HOME AND HOSPITAL, ROXBURY, MASS. MR. G. D. RAND, ARCHITECT, BOSTON, MASS.

HOUSE OF ANDREW M. FINLAY, ESQ., ST. LOUIS, MO. MR. E. A. MANNY, ARCHITECT, ST. LOUIS, MO.

"CHICHOTA": HOUSE OF MR. D. H. KING, JR., JEKYL'S ISLAND, GA. MESSRS. HOWARD & CAULDWELL, ARCHITECTS, NEW YORK, N. Y.

THE UNDERPINNING OF ST. MARY WOOLNETH, LONDON, ENG.

For description see article elsewhere in this issue.

[The following named illustrations may be found by reference to our advertising pages.]

"A 'SUMMER SCHOOL' OF ARCHITECTURE ABROAD": TWO PLATES.

SEE "An Architectural 'Summer School' Abroad" elsewhere in this issue.

A GROUP OF DOOR-HEADS.

[Additional Illustrations in the International Edition.]

MAIN STAIRCASE-HALL: LIBRARY OF CONGRESS, WASHINGTON, D. C. ARCHITECTS, MESSRS. SMITHMEYER & PELZ; P. J. PELZ; E. P. CASEY.

[Gelatin Print.]

THE PULPIT IN ST. JACOB'S CHURCH, STETTIN, PRUSSIA.

[Gelatin Print.]

IN 1677, when Stettin, the capital city of Pomerania, then in the possession of the Swedish crown, was besieged by Frederick William, the Great Elector, nearly all her public buildings, especially her churches, were destroyed by fire. Among those burned was the Jacobkirche, of which nothing save the bare walls and pillars remained. During its restoration, which occupied almost thirty years, this church received a superb organ-case, a magnificent high-altar, shaped after a famous Florentine model, the fine oaken choir-stalls and pews, several richly ornamented galleries, and last, but not least, the beautiful pulpit shown in our plate, in which the richness of form vies with the distinguished simplicity of the color-effect. The ivory-colored statuettes stand out prominently from the dark background of the carved woodwork in impressive, noble, *baroque* forms, which in the course of time has assumed that beautiful mellow hue peculiar to oak. The portraits of the founders of the pulpit, a Stettin patrician and his spouse, which are seen against the pillar, back of the pulpit, also show an experienced hand. Their names are not known any more than is the name of the excellent artist to whom the city is indebted for the pulpit. The date of its origin is about the year 1690.

BURGH MALL, BATHGATE, SCOTLAND. MR. J. GRAHAM FAIRLEY, ARCHITECT.

VILLA AT BARTON-ON-SEA, ENG. MESSRS. DANCATER & ROGERSON, ARCHITECTS.

COTTAGES IN THE ETONWICK ROAD, ETON, ENG. MESSRS. RYAN-TENISON & THORNTON, ARCHITECTS.



NEWGATE PRISON TO BE RAZED. — In the not very remote future the jail of Newgate and the Old Bailey Sessions House are to be pulled down to admit of the building of a spacious new Sessions House on the ground they now occupy. In William the Conqueror's time a gate known as "Chamberlain," or the "Chamberlain's Gate," stood across the street at a spot between Warwick Lane and the present prison. This, rebuilt in the reign of Henry II, or his successor, was in the reign of Henry III in common use as a jail. In the year 1400 Henry IV committed it by charter to the care of the corporation. Sir Richard Whittington, moved by the ruinous state of the fabric, instructed his executors to rebuild it, which was done upon the customary plan. After undergoing an addition, some repairs and refronting, at various periods, the old buildings gave way to new ones designed by George Dance, R. A., the first stone of which was laid by Lord Mayor Beckford on May 31, 1770. Before they were finished they were pillaged and burned on June 6 and 7, 1780, by the No-Popery rioters, and after that a sum of £30,000 was devoted to repairing and completing the fabric, which is considered by experts to be admirable in design and character. The outer walls are nearly four feet thick. On the opening of Whitecross Street Prison in 1815 Newgate ceased to be used for debtors, and since 1882 it has only been utilized for those awaiting trial during sessions and for prisoners condemned to death. — *London Telegraph*.

WOLSEY'S LEADEN WATER-PIPES.—As long ago as the sixteenth century Coombe was noted for its fresh-water springs, and when the great Cardinal Wolsey built Hampton Court Palace he determined to bring his supply of drinking-water from Coombe. An elaborate and very successful method was employed for collecting the water from the various springs on the hill. There were three principal conduit-houses, which still exist—one on the estate of Sir Douglas Fox, which is called from this circumstance "Coombe Springs," and two others on or adjacent to the estate of Middleton Campbell. By means of a number of underground carriers, or feeders, the water was conveyed from the springs to these conduit-houses, whence it flowed in separate pipes to a point not far from Norbiton Station, where a junction was effected. From this point the water was taken direct to the palace through a lead pipe $2\frac{1}{4}$ inches in diameter, which ran at a depth varying from three feet to six feet, in front of what is now St. Peter's Vicarage, across the Cambridge Road, and in a straight line to the Fairfield, which it crossed, proceeding thence through Knight's Park, beneath the Hogg's Mill stream, and through Woodbine Park to the river. Here a considerable dip was necessary to take the pipe under the Thames, after which it was an easy matter to lay it through the Home Park to the palace. The water from Coombe formed the sole domestic supply for Hampton Court Palace for nearly 350 years, and was only discarded about thirty years ago. There were two circumstances which chiefly influenced the authorities in abandoning the Coombe supply. The increase of building on Kingston Hill had the effect of polluting some of the sources of the supply, and it was anticipated that, with a considerable addition to the number of houses in the future, there would be further pollution. Another difficulty was that the barges which came up to Kingston, when they dropped anchor in the Thames, used frequently to grapple and damage the lead pipe, which led to the occasional failure of the supply. Consequently, a new supply of drinking-water for the palace was obtained from a branch of the River Colne, formerly known as the Cardinal's River, but now known as the Queen's River. The intake is at Hampton, where the water undergoes filtration, and is thence pumped to the palace. By order of the Commissioners of Works the old lead pipes between Coombe and Hampton Court Palace, which have been buried ever since the year 1520, have recently been taken up. It says much for the honest workmanship of our ancestors that these pipes were found to be in perfect condition, and very few of them had any trace of wear and tear. They included some of enormous length, as much as two hundred feet being found without a joint. These old pipes are of great value, because they were made at a time when the method of extracting the silver from the lead had not been discovered, and the substantial nature of the pipes may be gauged from the fact that they average about eleven pounds to the foot lineal. Owing to the great development of building on the route of the pipes, it has been, of course, impossible to recover the whole length that passes through Kingston, as a good deal of it is covered with bricks and mortar; but the undertaking has proved a decidedly profitable one for the Commissioners of Works, who will be some hundreds of pounds in pocket by it. Incidentally, it may be mentioned that the old red brick plug-house, which for so many years was an eyesore to people crossing the footbridge from Grange Road to Denmark Road, has now been demolished. — *The Surrey (England) Comet*.

WELSBACH'S ELECTRIC-LIGHT.—*The German Journal for Gas Lighting*, of recent date, reports Consul-General Mason, of Frankfurt, Germany, contains some highly interesting information upon what is, perhaps, the most important new topic in the science of illumination, namely, the improved incandescent filament for electric-lamps, which has just been announced by Dr. Auer von Welsbach, the distinguished inventor of the incandescent gas-light which bears his name. It was but natural that, having perfected the device which increases so remarkably the illuminating power of gas, Dr. von Welsbach should seek to develop some similar improvement for the application of electrical currents to illuminating purposes. This, he appears, from the somewhat meagre accounts published, to have found in a filament of osmium, one of the rare metals, which, besides being the densest of all metals, is the most refractory, being infusible at any except the highest attainable temperatures. Osmium is found native as an alloy in certain ores of platinum and iridium. It is a hard, bluish-gray metal, with an atomic weight of 191.1, and the enormous specific gravity of 22,477, the heaviest substance known. Its tetroxide has a strong odor of chlorine, from which circumstance its name was originally derived. But the property which must have suggested osmium as the material of the new electrical filament was its practical infusibility, its known resistance to temperatures in which platinum and iridium volatilize and disappear. It is well known that the intensity of light emitted by an incandescent substance increases rapidly with its absolute temperature. By heating osmium in a vacuum with an electrical current strong enough to volatilize platinum it attains a luminosity hitherto almost unknown, emitting a white light of agreeable quality and color, but of great intensity. So far as can be inferred from what has been published, the experiments of Dr. von Welsbach go quite beyond the employment of a naked osmium filament, and include coating the metal with a refractory oxide like thoria. — *Electrical Engineer*.

A PORCELAIN HOUSE.—Japan, it seems, intends sending to the Paris Exhibition a huge house, hexagonal in shape, and composed entirely of porcelain. It measures several yards in circumference, and its weight will not be less than seventy tons. From the artistic point-of-view, according to the several models already finished, it will be exquisite. It is estimated that the cost of making it will be about £2,000. — *London Chronicle*.

FRESCOS IN CHURCH OF THE FRARI, VENICE.—Some beautiful frescos have lately been discovered in the famous Frari Church in Venice. They had been covered with whitewash in the seventeenth century. — *N. Y. Evening Post*.

A NOTED POLISH CANADIAN.—Sir Casimir Stanislaus Gzowski, K. C. M. G., who died at his home, in Toronto, a few days ago, was one of the great men of Canada. He was born in St. Petersburg, March 5, 1813. His father, Count Gzowski, a Polish nobleman, was an officer in the Imperial Guard. When the disastrous rebellion against the tyranny of Constantine broke out, young Gzowski, with the patriotism of his race, threw in his lot with the insurgents. He was present at the Polish triumph at Warsaw, and took part in the engagements which followed. He was several times wounded, and when the final catastrophe came, the division to which he was attached surrendered, the officers were imprisoned for several months, and were afterwards exiled to the United States. After four years in this country, he moved to Toronto, where he lived up to the time of his death. Sir Casimir was the first president of the Society of Canadian Civil Engineers, and was also the first chairman of the Niagara Falls Park Commission. A fine bronze bust of him has been placed in Queen Victoria Park, near Table Rock, by the Park Commissioner. He also won considerable reputation in building the international bridge over the Niagara River. — *N. Y. Tribune*.

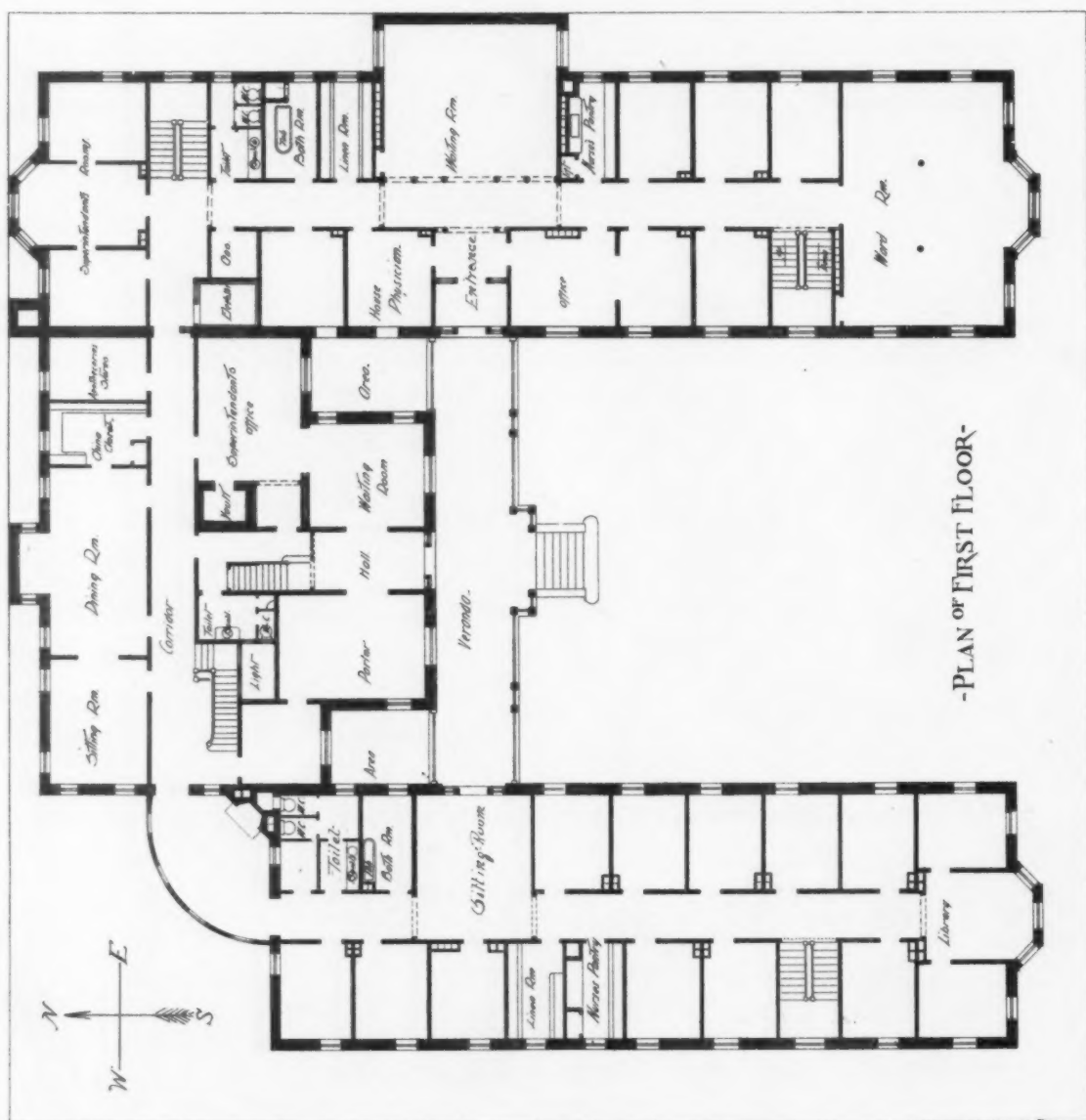
"FEATHERS TAVERN" AND THE MILLIONAIRE.—"Willie Walled-off" is the latest name given William Waldorf Astor by his neighbors, who resent his shutting-up the park at Cliveden. He is known as that "upstart American" and all his pretensions are derided. He, it appears, had intended to reopen Cliveden when he had a row with a man named Coe, the landlord of the old "Feathers Tavern," situated near the gates. Mr. Astor first tried to have the tavern torn down, but Lady Louisa Laplow, to whom the ancient hostelry belongs, refused to allow it. She said it was historically interesting as the place where the Duke of Buckingham slept the night before he fought and killed Lord Shrewsbury in Cliveden Park. Then Mr. Astor tried to get the justices to revoke Mr. Coe's license, but without success, and so the warfare wages. He is to give a dinner around the famous redwood tree, which, if you remember, he had brought from California. It is a section of one of the Mariposa big trees. He made a bet with General Owen Williams to seat forty round the tree, and is bound to do so. That it will be a tight fit those who remember the tree will have no doubt. The invitations are to be sent out a month in advance and the dinner will take place about the middle of October. — *Boston Transcript*.

BONFIELD AND JOSEPH BONAPARTE.—Of George R. Bonfield, the artist, of Philadelphia, who has just died, the *Ledger* of that city tells this story: "Early in life he was a marble carver, and his employer sent him to Bordentown, N. J., to decorate some marble work at the residence of Joseph Bonaparte, the exiled King of Spain. One day, while passing through one of the halls, he saw a marine scene, painted by one of the French masters. In a twinkling young Bonfield had his sketch-book, which was always his companion, in his hand, and commenced to draw the scene. While so occupied he heard footsteps approaching, and, not wanting to be caught, as he considered, taking his employer's time, he tried to put the book in his pocket without being noticed, but was too late. It was Bonaparte who saw his attempt to conceal the book, and asked young Bonfield to show him what he was doing. The young man complied with the request, and the ex-King of Spain so much admired the work that he not only gave him permission to roam wherever he pleased through his art galleries, but introduced him to his daughter, who was also an admirer of art."

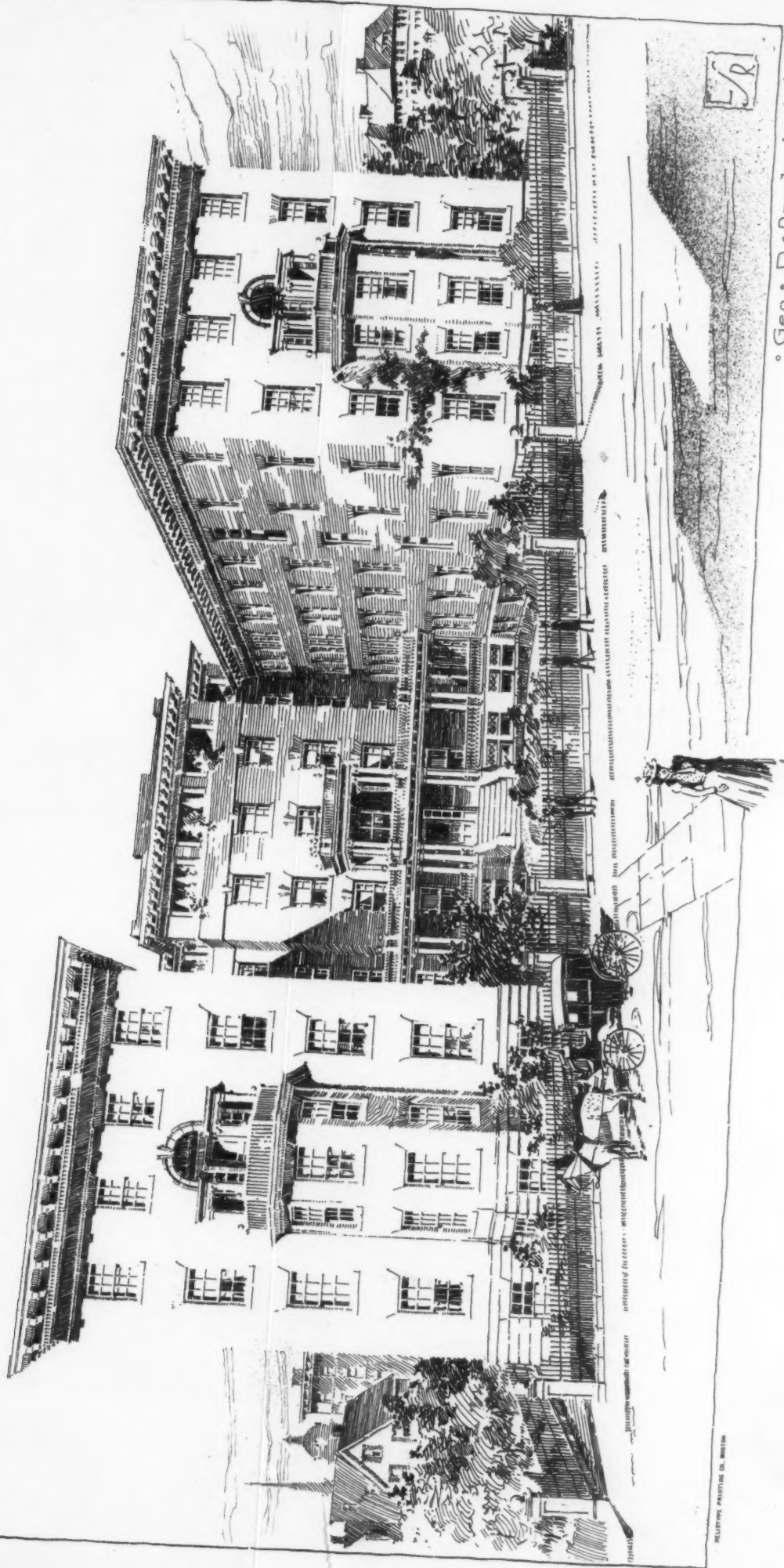
A WONDERFUL JAPANESE CARVING.—One of the most marvellous workmen in the world is Hananuma Masakichi, of Tokio, Japan, who has carved a figure in wood so like himself that when the two are placed side by side it is said to be almost impossible to tell which lives and breathes and which does not. By several connoisseurs in art this wooden figure has been pronounced the most perfect and human image of man ever made. Masakichi has faithfully reproduced every scar, vein and wrinkle to be seen on his own body. The figure is composed of 2,000 pieces of wood, dovetailed and jointed with such wonderful skill that no seams can be detected. Tiny holes were drilled for the reception of hairs, and the wooden figure has glass eyes and eyelashes in which no dissimilarity to Masakichi's own can be detected. The Japanese artist posed between two mirrors while modelling this figure, and for some time after his completion he posed frequently beside it, to the confusion of spectators, who were often entirely at a loss as to which was the artist. The figure stands with a little mask in one hand, and an instrument for carving in the other; the lifelike eyes are apparently gazing at the mask, and the face wears a look of intense absorption. — *Youth's Companion*.

MORE THAN ONE WAY OF PAYING FOR A CHURCH.—The cost of building the native church of the London Missionary Society in Apia has been defrayed chiefly by—cricket matches! Once a week the chiefs ordered all the people, men and women, boys and girls, to play the game. Any one who disobeyed this order was fined a dollar. This did not often happen, for all usually mustered on the ground for play. The matches were played in different parts of the town, and from three hundred to four hundred players would take part in one game. Each player of the losing side had to subscribe a shilling toward the building of the church. The scheme became very popular, and after a while folk of all denominations, people from other parts of the world, white and black, desired to participate in the game. It was finally arranged that any person not belonging to the church could indulge in an innings upon payment of one shilling to the church. A number of young men, who otherwise would not have subscribed a cent to the church, became large supporters and subscribers, and many shillings were gathered in each day of the play, and now the Apia natives are in the proud position of having one of the finest and most handsome churches in the islands, entirely free from debt. — *Western Mercury*.

LEND · A · HAND ·
 HOME · AND · HOSPITAL ·
 Williams · Street ·
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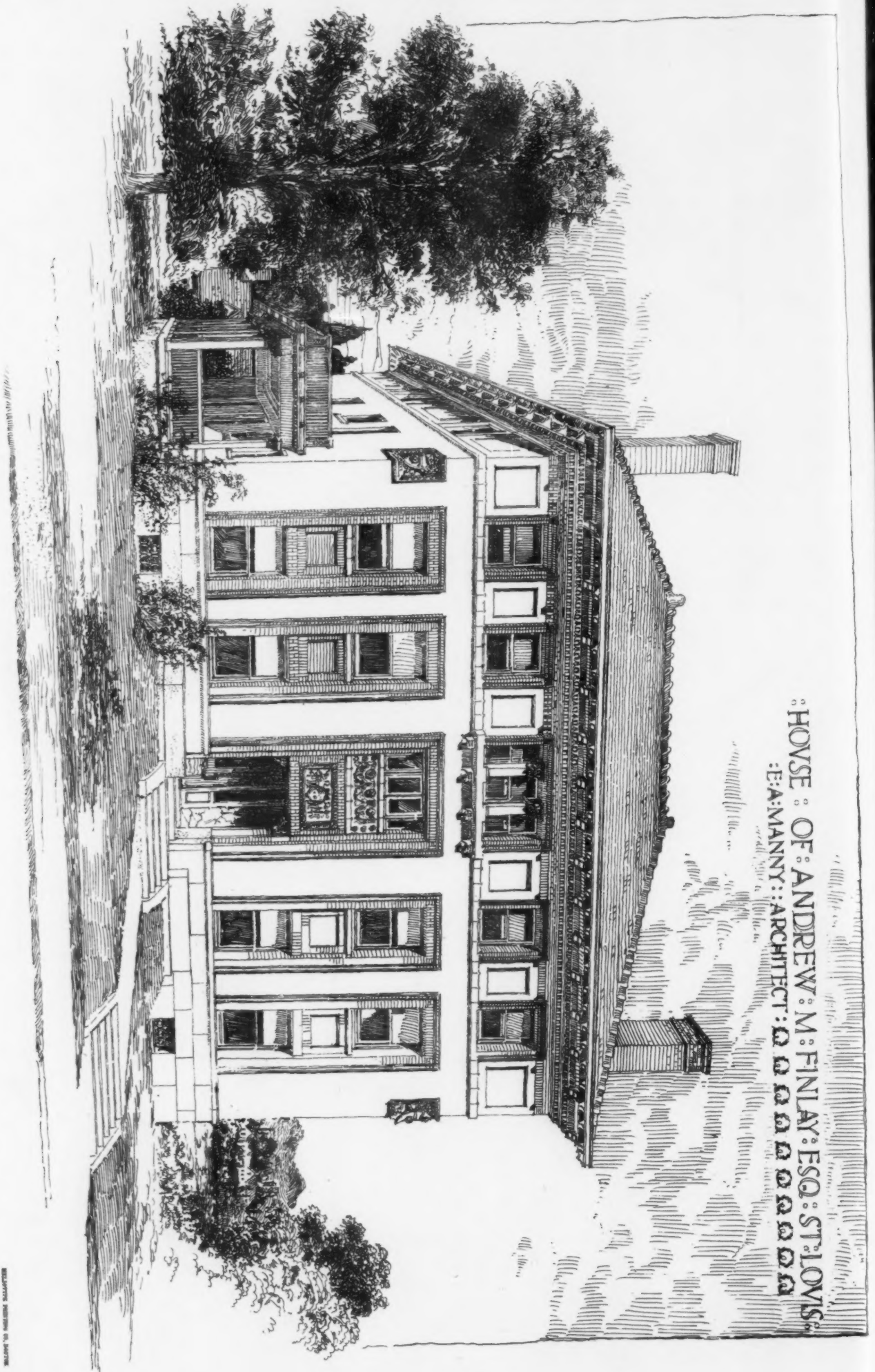


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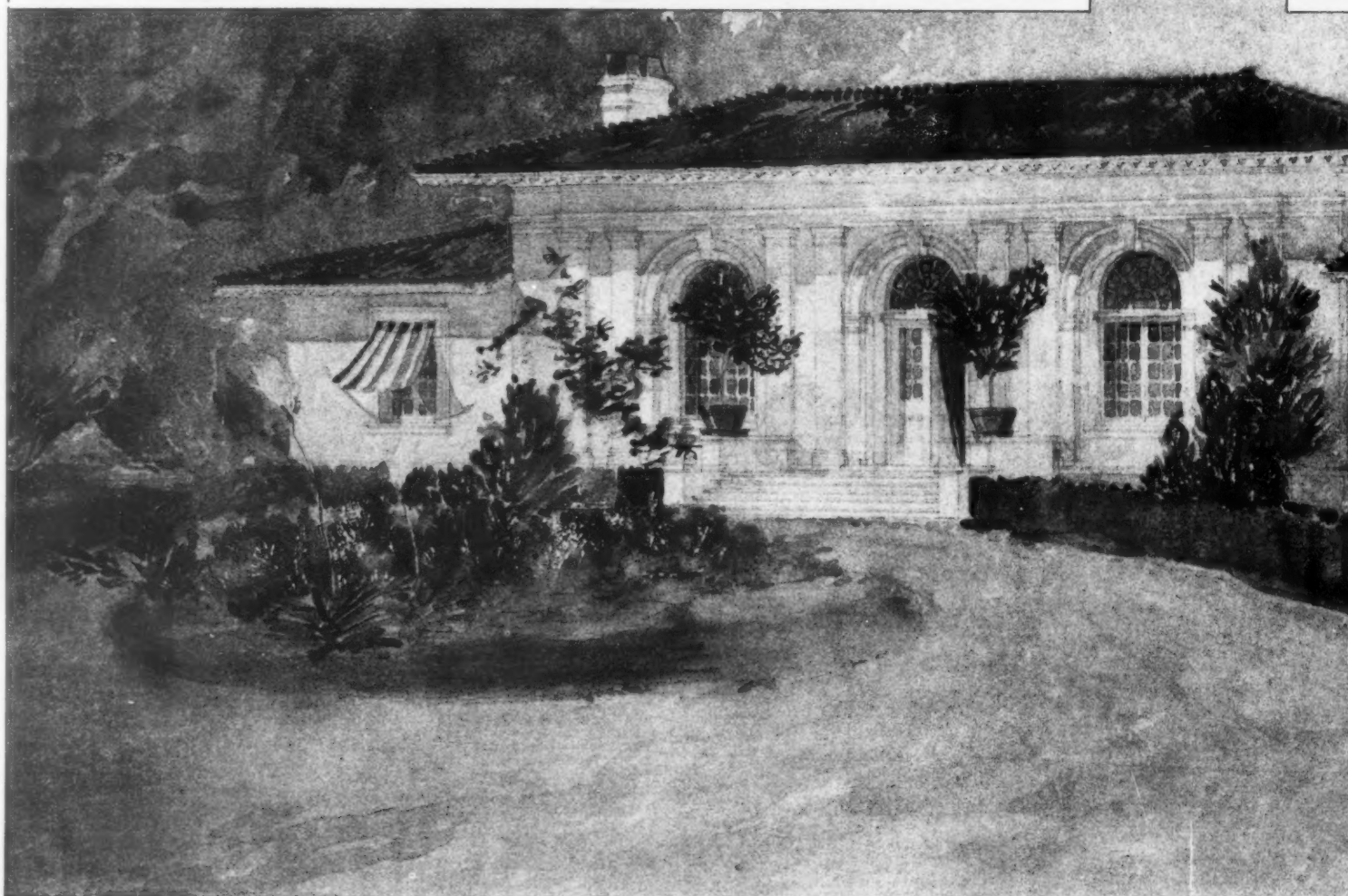
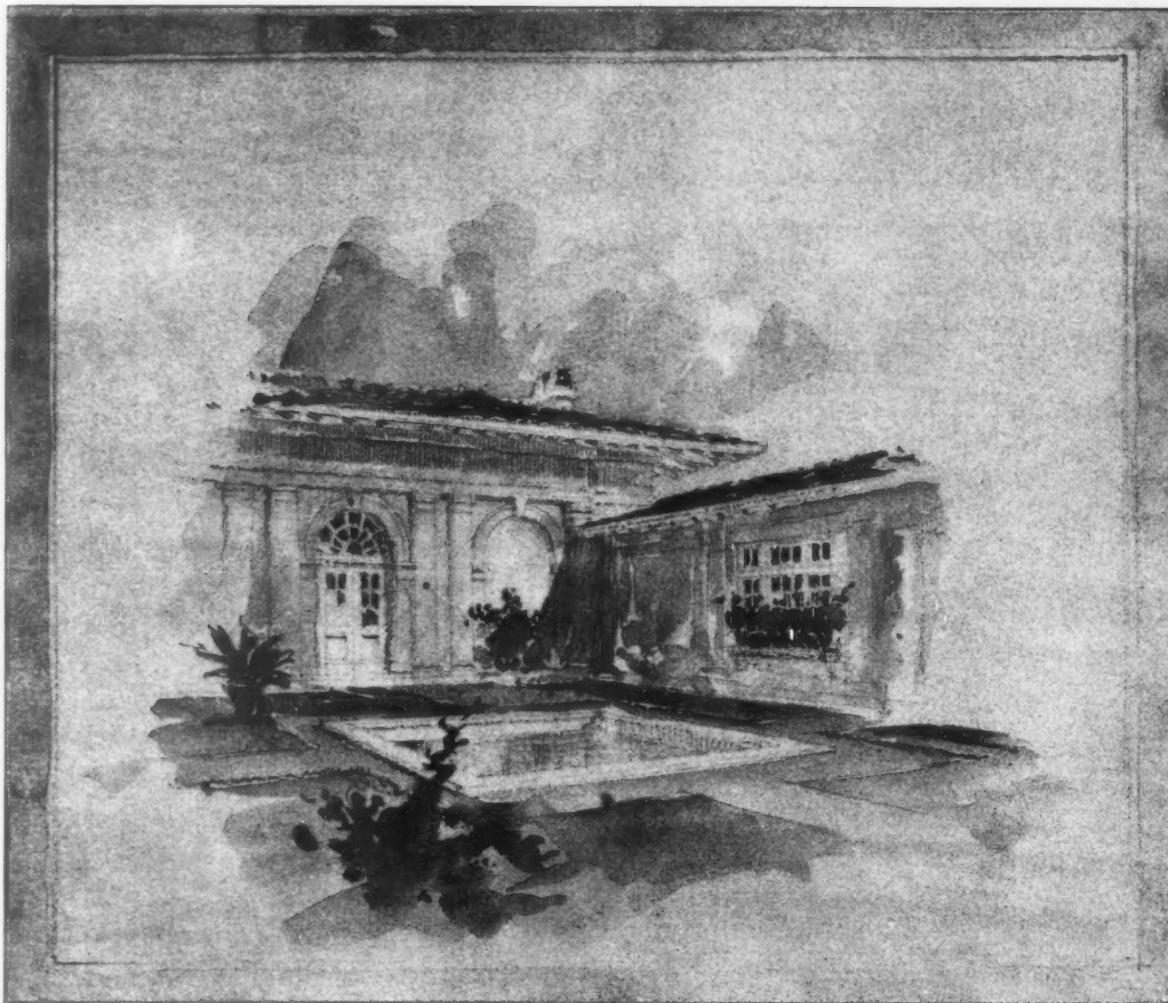
Geo. D. Rand, Architect.
"6 Beacon St Boston."

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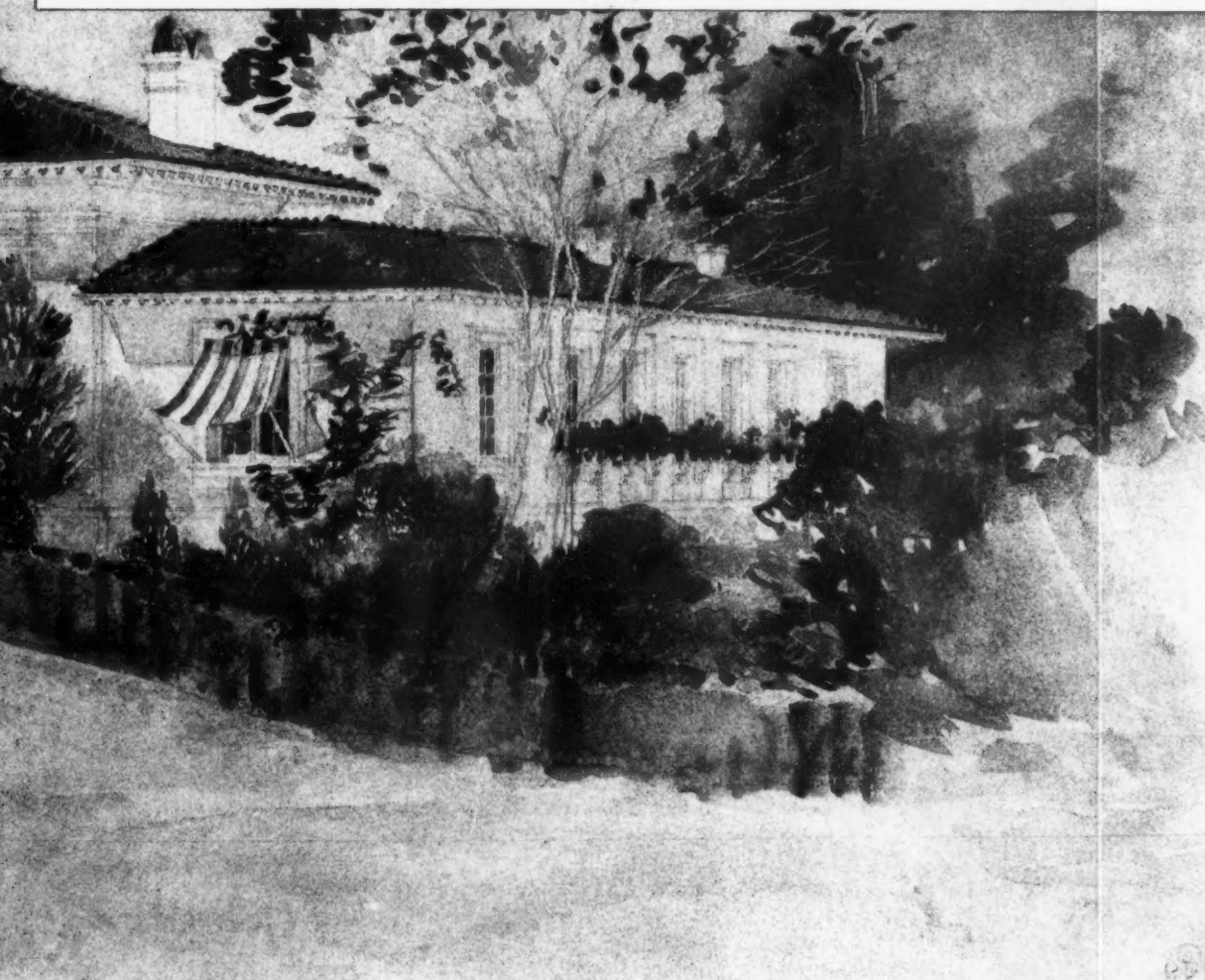
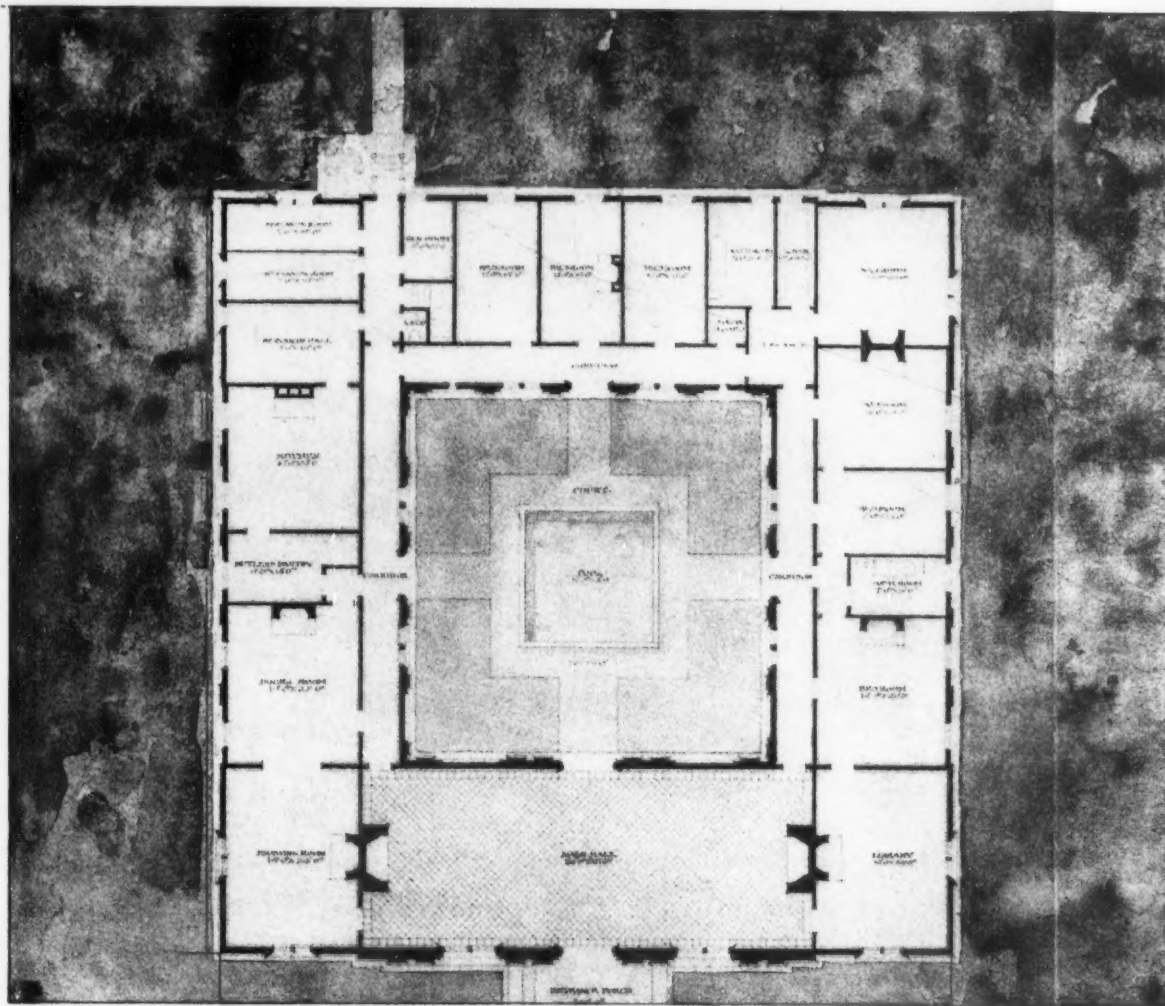


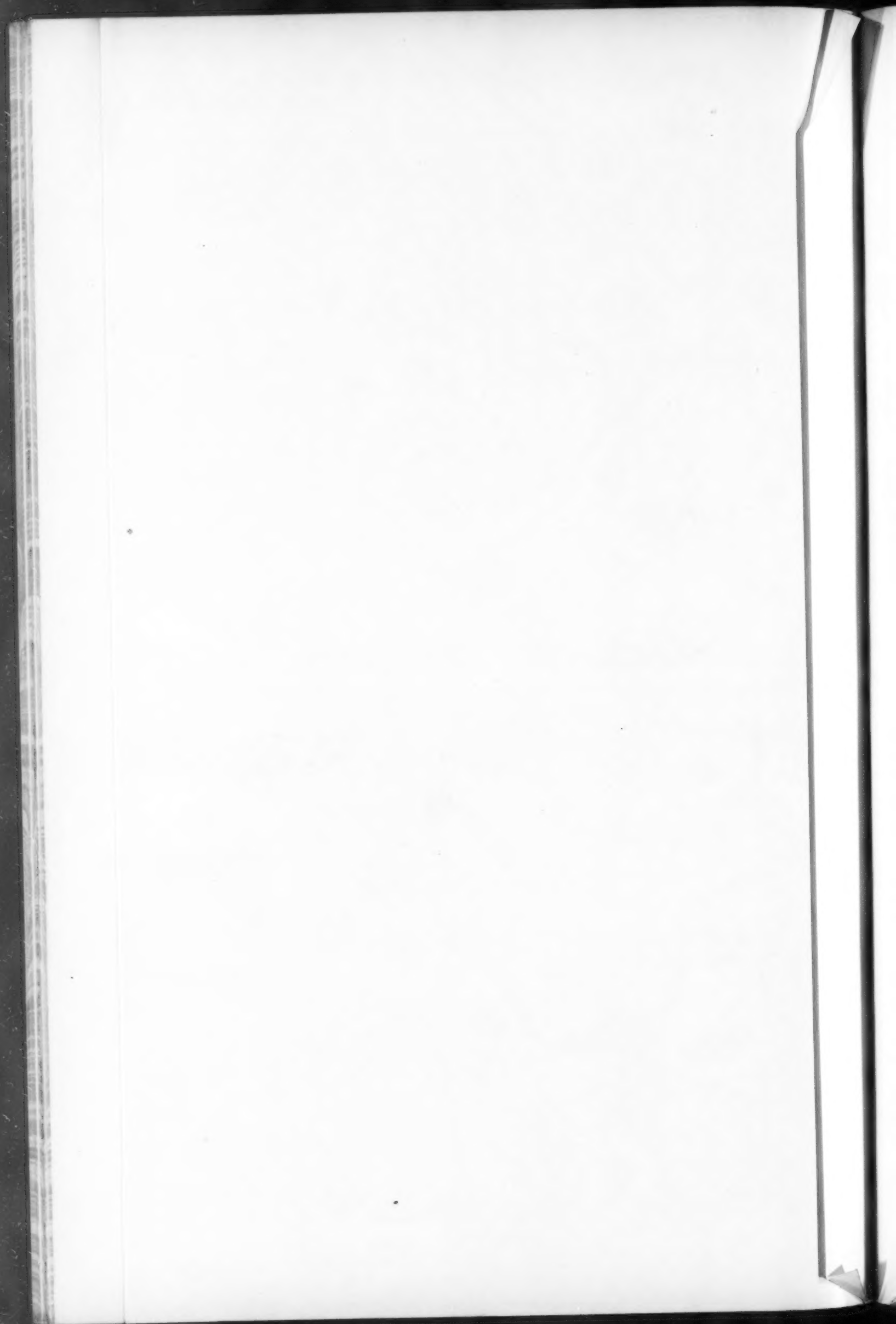
HOUSE OF ANDREW M. FINLAY, ESQ., ST. LOUIS.
 BY E. A. MANN, ARCHT.

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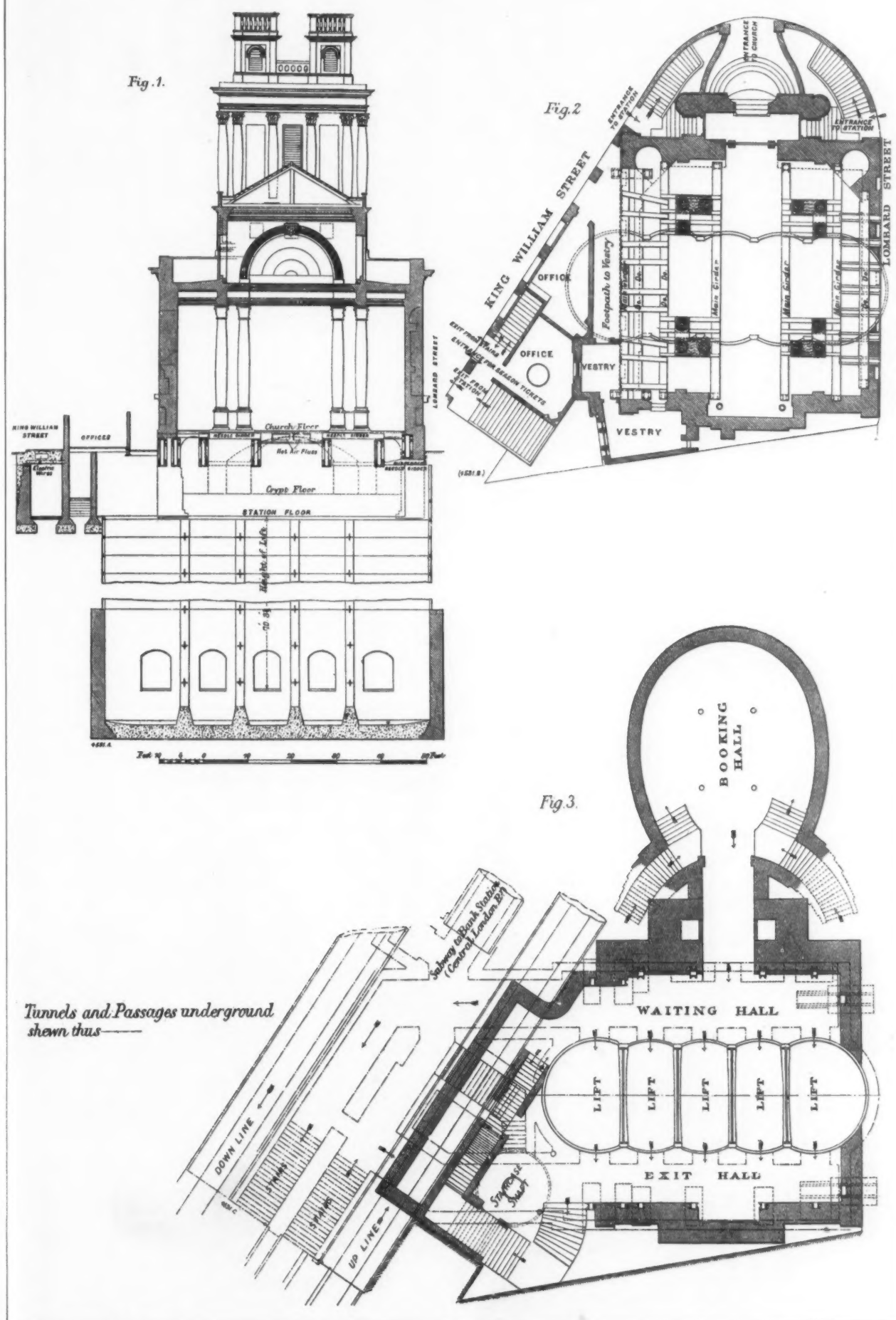


"CHICHOTA," JEKYL'S ISLAND, GA.
HOWARD & CAULDWELL, ARCHITECTS.



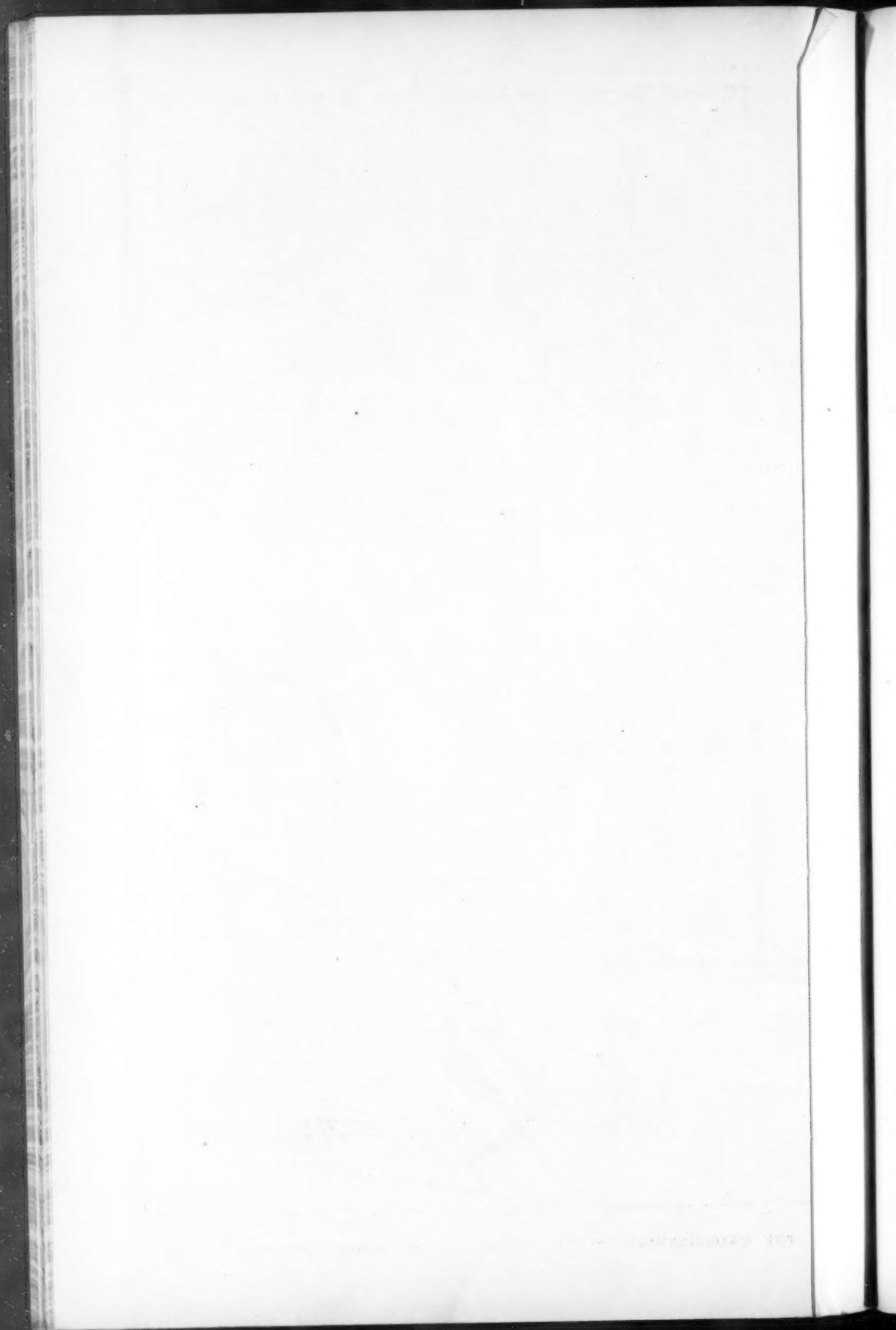


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HELIOTYPE PRINTING CO. BOSTON.

From Engineering.



THE AMERICAN ARCHITECT AND BUILDING NEWS

ADVERTISERS' TRADE SUPPLEMENT.

No. 196.

SATURDAY, SEPTEMBER 3, 1898.

VOLUME LXI.
No. 1184.

REVOLVING DOORS.

A LEGAL DECISION IMPORTANT TO THE BUILDING TRADE.

THE Van Kannel Revolving Door Company announces the successful termination of the infringement suit to sustain its fundamental patent on revolving storm-doors. This suit was brought against Walter W. Ife in the U. S. Circuit Court for the District of Minnesota. The court entered a decree sustaining the patent (387,571 granted August 7th, 1888, to T. Van Kannel) and ordering a perpetual injunction against the defendant.

The revolving door has gained favor so rapidly with the public, within the last three years especially, that it is now being specified by all the leading architects, for the largest and best buildings. They are also being introduced in apartment-houses, churches, theatres and libraries, for it is conceded that one of the most vexatious problems met with in the construction and maintenance of large buildings is the entrance-door, and this has



now been satisfactorily solved by the invention and development of the revolving door.

Many valuable improvements have been added. In our Style C fixtures, the four wings may be folded flat on each other, and moved aside by one person, single handed, in the fraction of a minute, thus leaving a clear passageway for furniture, bulky packages or for full ventilation.

We are now publishing a complete line of catalogues, circulars and other matter which will enable architects, builders and those in charge of buildings to easily understand the construction and operation of the revolving door as now manufactured in various styles and for many purposes besides its use as a storm-door.

Architects, contractors and builders will be furnished with special information in the way

of blue-prints and descriptions, special designs, etc. Address,

VAN KANNEL REVOLVING DOOR CO.,
253 BROADWAY, NEW YORK, N. Y.

AWARD OF CASH PRIZES.

AMERICAN LUXFER PRISM COMPANY GIVES
\$5,000 FOR DESIGNS.

CASH prizes aggregating \$5,000 have been awarded to architects, in Chicago and all over the country, who submitted successful designs setting forth new possibilities in the use of Luxfer prisms as building material. The prizes were offered for competition by the American Luxfer Prism Company and the money has been remitted to the victors.

The results show superior ability among the architects of Chicago, who succeeded in carrying off the biggest prizes. The designs submitted were for practical and artistic application of the Luxfer prisms, and a number of new ideas and valuable innovations were secured by the competition.

The prizes were awarded as follows: First prize, of \$2,000, was awarded to Robert C. Spencer of Chicago; second prize, of \$1,000, to Adamo Boar, who won the prize of \$20,000 for the best design on the government building of Mexico; third prize, of \$500, was awarded to S. S. Beman, designer of the Town of Pullman; fourth prize, of \$300, to H. Curtis Hoffman of Chicago; fifth prize, of \$200, to T. F. Sewall of Chicago. Prizes to the amount of \$1,000, divided into \$100 each, were also distributed to the next ten successful competitors.

Judges who made the awards were D. H. Burnham, W. L. B. Jenney, William Holabird, Frank L. Wright and Professor Henry Crew of Northwestern University.

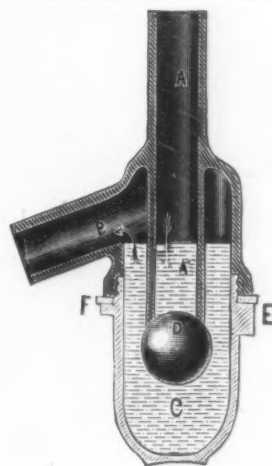
AMERICAN LUXFER PRISM COMPANY,
CHICAGO, ILL.

THE United Gas and Improvement Company, of Philadelphia, Pa., are making extensive additions to their gas-producing plant. These plants are known as the 25th Ward and Point Breeze locations. At the 25th Ward Gas Works they are building a new scrubber-house 45 feet wide and 120 feet long, a purifier-house 86 feet wide and 180 feet long. At the Point Breeze Works they are erecting a new boiler and engine room 220 feet long and 55 feet wide; a condenser building 40 feet wide and 105 feet long; a purifier building 86 feet wide and 180 feet long; a generator-house 100 feet wide and 184 feet long; a meter house with additions for exhaust and valve room, having a width of 70 feet and a total length of 223 feet. All

of these buildings are of steel-frame construction, brick side-walls, and slate roofs supported on metal purlins carried by clear-span trusses. All the structural steel work for this extensive plant is being furnished and erected by The Berlin Iron Bridge Company, of East Berlin, Conn.

THE BOWER SEWER-GAS TRAP.

THE accompanying cut is a sectional view of the Bower Sewer-Gas Trap. It can be attached to any sink, bath-tub, wash-stand, etc.,



in a very short time, and has been fully endorsed and highly recommended, it is stated, not only by the leading experts in this country but also by those in Europe.

The Manufacturers, The B. P. Bower Trap and Speciality Co., of Cleveland, Ohio, describe this trap as follows:—

A A'—Inlet pipe, connecting directly with the wash-stand, sink, or other fixture. B—Outlet pipe, connecting directly with the main waste pipe. C—Cup-shaped chamber, which always remains filled with liquid up to pipe B, thereby floating the hollow rubber valve D firmly to the mouth of the pipe A', and making a perfect seal. C'—Trap body. E—is a small lug on the cup, to enable a person to screw and unscrew the cup easily. (Cup may be glass, lead or brass). F—Is a rubber gasket to prevent leakage from the joining of the cup to the body of the trap. G—Is the brass body screw. The inlet pipe A extends from basin or other fixture down into the chamber C, which will always retain sufficient water to float the valve to its seat, and also maintain a most effectual water-seal.

Its form, and the quantity of water in chamber C, above the bottom of inlet, exceeding that in the inlet A', prevents this trap from losing its seal by siphonage. This form also

adds to its effectiveness against back-pressure of gases, while the valve will positively prevent the passage of gases under pressure, absorbed gases and back-water. It will not lose its seal by evaporation, will not break in freezing.

The cup C may be either metal or glass, interchangeable; with the glass it can be seen that the claims we make are true. The removable section allows for thorough inspection, cleaning, etc.

The B. P. Bower Trap and Specialty Co. will gladly furnish our readers with all desired information concerning these traps.

THE B. P. BOWER TRAP AND SPECIALTY CO.
CLEVELAND, O.

FIREPROOF CONSTRUCTION.

FIREPROOF construction as an economic feature of modern buildings has in recent years attained a position of great importance. The permanent character of fireproof buildings, their superior sanitary conditions, the immunity they offer the owner from loss by fire, the security of life and property to the tenant, as well as the greatly reduced rate of insurance, are advantages which fully warrant the additional expense of making the better class of buildings fireproof.

The problem of fireproofing buildings successfully and economically involves many complicated and conflicting conditions, and is very

water-resisting properties of "cinder" concrete (composed of high-grade Portland cement, sand, and the residue of anthracite coal consumed in steam-boilers), and led to its adoption as a fireproof material.

In this systematic manner, and by carefully noting and considering the practical conditions in buildings in the course of erection, the present improved and effective forms of construction have been evolved.

Our various types of fireproof floors have been subjected to crucial and exhaustive tests with eminently satisfactory results. They will, for the purposes designated, develop ample strength, afford efficient protection to the supporting ironwork in case of fire, provide ceilings that will not crack or discolor the plaster, prove economical in material, and fulfil every other requirement of practical and first-class constructions.

Fireproofing contracts are executed by John A. Roebling's Sons Company, of New York City, N. Y., and by the New Jersey Wire Cloth Company, of Trenton, New Jersey. With a large force of skilled and experienced workmen and the ample capacity of our own wire mills, our facilities for fulfilling large contracts and for erecting work rapidly are unequalled.

The "System A," or arch construction, with flat ceiling, is illustrated by the subjoined cut. It consists of a wire-cloth arch, stiff-

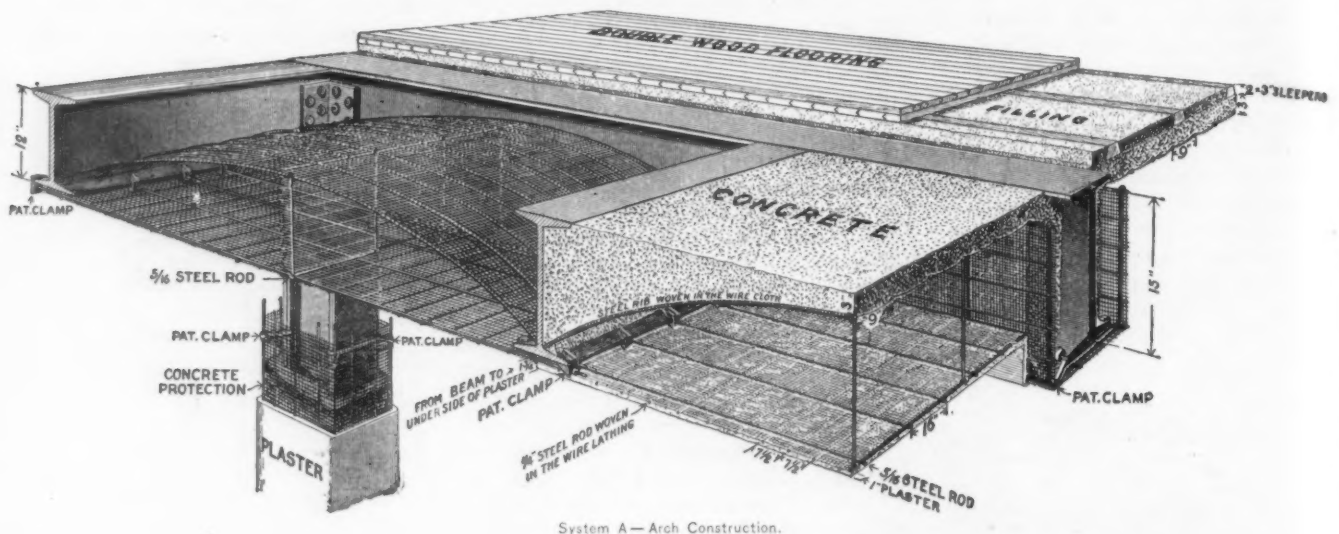
segmental in form, invariably settle. This causes cracks, not only in the expensive floor finish but also in the plastered ceilings.

A segmental concrete arch never settles, because the concrete, when set, becomes a monolith, or single piece. The concrete arch as erected by this Company has, besides, considerable elasticity.

The standard methods of fireproofing columns and girders are also shown. The methods usually employed are defective, in that the protecting material peels off and falls away when exposed to a hot fire.

There is a prevailing idea that nothing quite equals the ordinary brick arch in strength and low cost for warehouse construction.

We have repeatedly substituted our construction for brick arches and effected a saving. For strength we need only to refer briefly to the records of the New York Building Department. These will show that on December 13 to 16, 1896, the Department loaded a 4-foot section of our flooring that had previously (October 28, 1896) been subjected by them to a fire-test of five hours, at a temperature of 2,000° to 2,350° F., and then cooled by a stream from a regulation fire-engine. Timber supports were placed under the iron beams and narrow openings cut through the concrete, from beam to beam, so as to completely separate the section to be tested from the rest of the floor. A brick



System A—Arch Construction.

difficult to solve. Of the numerous methods or systems now on the market, only a very few fulfil the requirements satisfactorily, and some of these are so expensive as to preclude their extensive use.

The very unsatisfactory manner in which many so-called fireproof buildings resisted the action of fire and water in actual conflagrations and the utter lack of precise knowledge on the subject of fireproof construction induced John A. Roebling's Sons Company six years ago to undertake a careful investigation of the subject of fireproofing. The problem was then, for the first time, considered from a scientific standpoint, and was treated precisely as any other engineering problem. With a corps of able engineers, machinery to execute any mechanical device, a complete fire-extinguishing equipment and numerous basic patents embracing a wide range of multiform construction, the facilities of this Company for reaching definite and practical results have been for some years unique. Many costly but instructive tests have been made to determine not only the best material but also the most advantageous and economical methods of employing it. These tests established the wonderful fire-and-

ened by *woven-in* steel rods, which is sprung between the floor-beams, and abuts into the seat formed by the web and lower flange of the I-beams. On this wire centring Portland cement concrete is deposited and allowed to harden. The result is a pleasing monolithic construction, admirably adapted for a fireproof floor.

The ceiling consists of a system of supporting rods attached to the lower flanges of the floor-beams by a patent clamp which offsets the rods below the I-beams. Under these rods, and securely laced to them, is the Roebling Standard Wire Lathing, with the *woven-in* 1/4-inch solid steel stiffening ribs crossing the supporting rods at right angles. This construction produces a ceiling absolutely free from any of the usual defects.

Every observant architect and builder has noted the unsightly cracks that develop, after a few years, in the mosaic, tile, and granolithic floors of many of our public buildings. Upon examination, it is found that the cracks occur at regular intervals over the iron beams.

What is the cause?

The arches have settled. Floor arches consisting of a number of assembled parts, with more or less imperfect joints, whether flat or

pier was built over the middle portion of the arch and a platform 7 1/2 feet square, on which the test-load was placed, rested on the pier.

The official report of the Building Department summarizes the test-load, supported by the arch, as follows:—

"Brick.....	38,000 lbs.
Stone.....	2,000 "
Planking.....	550 "
Three men.....	450 "
Total	41,000 "

which was distributed over an area of 10 square feet = 4,100 pounds per square foot."

This load is equivalent to a solid brick pier having the same base as the pier supporting the test-load and 33 feet in height. The arch tested was identical, in every respect, with the regular construction as furnished under contract by this Company in New York City.

For factories, warehouses, stores, freight-depots, breweries, etc., where great strength and economy in space and cost is desired and for any building which may become the repository of large quantities of inflammable goods we have another type—Type 2.

The concrete around the soffits of the beams and girders being filled-in at the same time as that in the arches, the whole construction

Atlas PORTLAND CEMENT

Guaranteed to be
Superior to any
Imported Cement.

Used Exclusively in the Following New York Buildings:

HAVEMEYER STREET, SINGER BLDG.

ST. PAUL.

UNIVERSITY CLUB.

AMERICAN SURETY BLDG. N. Y. LIFE INS. BLDG.

BANK OF COMMERCE.

STANDARD OIL BLDG.

JOHNSTON and PRESBYTERIAN BLDGS.

Atlas Cement Company,

143 LIBERTY STREET,
NEW YORK.

becomes a monolith completely encasing the ironwork and protecting it more effectually than by any other method in use at the present time.

A monolithic construction in the form of a segmental arch is unquestionably the strongest, most economical, and best adapted for a fireproof floor. The material is disposed so that the entire section is in compression,

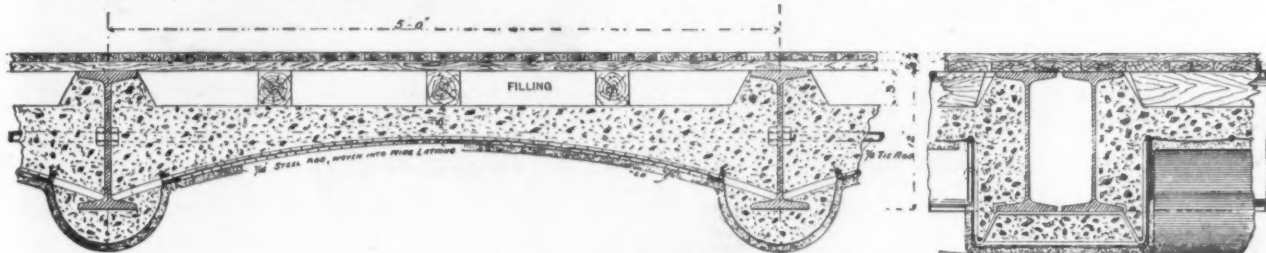
who have fallen on it from aloft. It also protects the workmen against any possibility of breaking through damaged spots in the flooring.

By dispensing with the flat ceiling finish, the cost is considerably reduced. A further saving is effected in the plastering, owing to the fact that only two coats are necessary in plastering against the under surface of the arch. When the beams are not spaced too

What causes these defects in the plaster-work?

Materials that yield up coloring matter when in contact with plaster; surfaces that do not provide a suitable key for plaster; the slight displacement of the assembled parts constituting the surface to which the plaster is applied.

Light steel and wire ceilings have been



System A — Type 2. Warehouse Construction, with Sleepers depressed.

This secures the maximum strength of the concrete without resorting to light metal elements in the construction. The massing of the fireproofing material about the beam affords also superior protection with the available material.

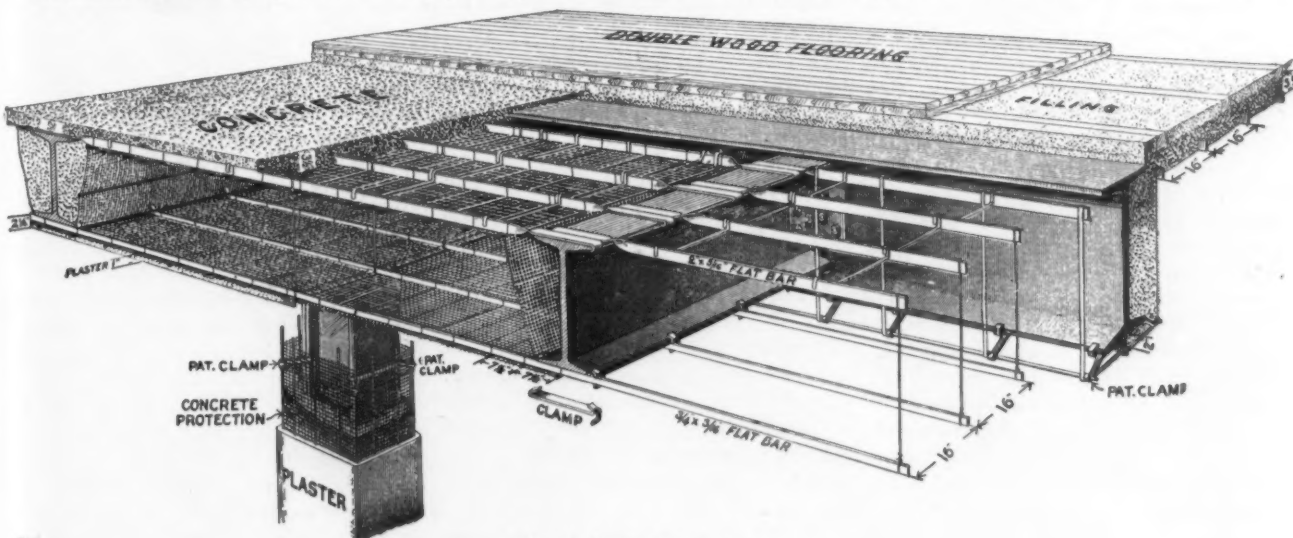
The permanent wire-centring is a distinctive feature of this system. This is always erected in advance of the concreting and enables the work to progress continuously.

far apart and no piping is to be placed transversely over the beams the sleepers may be depressed below the top flanges of the beams, thus reducing the total depth of the floor by the depth of the nailing sleepers. Air spaces under the beams can be conveniently provided if desired.

Every architect knows the importance of first-class plaster-work in handsomely finished buildings and how seldom the best results are

erected by this Company for many years. Plaster applied to these wire ceilings never sags nor cracks and never discolors. These are important *disiderata* where expensive fresco-work or other elaborate ornamentation is contemplated.

Another variation, Type 3, is adapted for department-stores, halls of record, banks, libraries, etc., in which the most efficient fire-proof construction as well as ornamental in-



System B — Flat Construction.

It allows the superfluous water to drip out of the concrete as soon as it is in position and, as both the upper and lower surfaces of the concrete are exposed to the air, the most favorable conditions for rapid drying are secured. The wire-centring is, besides, a valuable safeguard, having saved the lives of many workmen

obtained. Who has not observed the brown and yellow spots that almost invariably show through the plaster soon after it is applied, to say nothing of the unsightly cracks that develop later? These blemishes are frequently so conspicuous as to mar seriously the beauty and richness of a highly meritorious execution.

terior finish is desired. The ceiling may be adjusted at any level below the beams, to admit piping, etc., as may be desired.

Will cinder concrete rust iron?

This was a question of such vital importance that Booth, Garrett & Blair, the well-known chemists, were commissioned to make

ALSEN'S PORTLAND CEMENT

is the strongest and most serviceable Cement made, and will permit the admixture of a larger amount of sand or gravel with less loss of strength than any other brand; it is therefore the most economical. It is the finest-ground cement made, and has the largest bulk to the barrel.

The following test, made in actual work, by Col. D. C. HOUSTON, Corps of Engineers, U. S. A., at the sea-wall around Governor's Island, New York Harbor, has never been equalled by any other cement. It is as follows: Tensile strength per square inch, one day, 384 pounds; seven days, 600 pounds; thirty days, 818 pounds.

For Sidewalks it gives the best color, and the most durable wearing surface. Most of the prominent Railroad Bridges and the large Office Buildings of the country stand upon a foundation of concrete made of ALSEN'S CEMENT.

Alsen's Portland Cement Works, New York Office, 143 Liberty Street.

AGENTS AT BOSTON: WALDO BROS., 102 Milk Street.

[JUST PUBLISHED.]

.. PART II OF .. "THE GEORGIAN PERIOD,"

Containing measured drawings and gelatine prints of

COLONIAL DETAIL.

56 Plates 10 x 14 1-2 inches.

The contents of PART II, taken together with PART I, already published, constitute an altogether useful and interesting collection of architectural illustrations of the always-interesting and ever-useful and usable Colonial style.

PRICES: Part I, \$3.00; Part II, \$6.00. Both Parts Together, \$7.00.

Subscribers to the AMERICAN ARCHITECT itself who have settled their subscription for 1898 can obtain Part I for \$1.00 and Part II for \$4.00.

American Architect and Building News Co.

a thorough investigation. Their experiments and examinations are described in detail in the various reports submitted by them during the investigation. Their conclusion is stated in the following words: "No injurious effects are to be anticipated from the use of this concrete above ground in the ordinary practice of construction now followed for steel-frame buildings."

The concrete, by our method, is never rammed, but is spread in position and levelled with shovels. This insures lightness and preserves its highly porous character — an essential property of the concrete, if it is to withstand violent changes of temperature without disintegration. The porosity of the material, the rapid elimination of moisture after it is placed in position, and other special conditions, permit the installation of this system of fireproofing at lower temperatures than any other.

The "System B," or flat construction, is illustrated herewith. It consists of a light iron framework imbedded in concrete and spans the interval between the iron beams in the form of a slab. The light iron framework consists of flat iron or steel bars set on edge and spaced 16 inches, centre to centre, with a one-fourth turn at both ends, where the bars rest upon the iron beams. Spacers of half oval iron are placed at suitable intervals to separate and brace the bars. The Roebling Standard Wire Lathing with the 1/4-inch solid steel stiffening rib woven in every 7 1/2 inches is applied to the under side of the bars, the stiffening ribs running crosswise under the bars and laced to them at every intersection. On the wire-lathing so supported cinder concrete is deposited, thoroughly imbedding the light ironwork. The same ceiling construc-

tion as shown in "System A" may be used with this system. Flat iron bars set on edge are sometimes substituted for the rods in wide spacing of beams. The ceiling when plastered finishes 2 1/4 inches below the under side of the floor beams.

"System B" is intended to meet the requirements of a light, low-priced floor adapted to wide spacing of beams.

Where very shallow floors are desired the beams may be set on the lines of the partitions and the plaster applied directly to the under side of the concrete, omitting the wire ceiling. This system is practicable between beams spaced 10 to 12 feet apart.

The flat iron bars set on edge act as beams and support the wire-lathing and superimposed concrete while it is green, requiring only a few intermediate timber supports in wide spans. After the concrete has set, the bars, spacers, and rods become tension members. The ends of the bars being bent around the iron beams, the entire tensile strength of the bars is developed before the floor can fail. This method of attaching the bars ties the iron beams rigidly together every 16 inches and obviates the necessity of tie-rods.

Columns and girders are treated as in "System A."

"System B" involves the use of merchant iron solely. This is a marked advantage in erecting floorwork promptly at isolated points.

JOHN A. ROEBLING'S SONS CO.,
NEW YORK, N. Y.

EXPANDED METAL.

An interesting lecture on "Steel and Concrete" was given this week, at the Exchange Club, Boston, by George M. Hill of New York, Associate of the American Society of Civil Engineers, under the auspices of the Eastern Ex-

panded Metal Company of Boston. There was a large attendance of architects, civil engineers, and other persons directly interested in building and construction. The lecturer illustrated his remarks with lantern views showing pictures of buildings in the United States and Europe in which expanded metal had been used in the construction, both exterior and interior. He also exhibited the results of tests publicly made showing the marvellous strength of concrete embedded in expanded metal compared with the concrete not so embedded. He proved that the increase in strength is seventy-five per cent.

Expanded metal is made of steel, cut with the grain, and expanded into diamond-shaped meshes, so that the original surface is greatly increased. The direction of the edge undergoes a complete reversal, and the flat surface of the cut strand is at a 45° angle with the conditions originally existing. Only a soft, fine, tough steel is used in its manufacture. When prepared it presents its smallest surface as an obstruction to light, and its largest in the line of resistance to pressure. Each mesh is independent of the others; numerous strands may be cut without materially weakening the sheet. It is solid at all points of intersection and cannot be unravelled. For floor-construction it offers strength, lightness, and efficiency to resist fire.

After the lecture a discussion took place in which M. W. Fitzsimmons, supervisor of plans in the department of building inspection, H. H. Kendall of Kendall, Taylor & Stevens, architects, and several others joined, and a great deal of valuable information relative to building-construction was brought out. A collation was served later, at which the discussion was resumed in an informal way.