

THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XXXVI.

Copyright, 1892, by TICKNOR & COMPANY, Boston, Mass.

No. 851.

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

APRIL 16, 1892.



SUMMARY:—

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MR. WYATT PAPWORTH has been collecting, for the benefit of the Royal Institute of British Architects, accounts of cases involving the ownership of architects' drawings which have been decided in the English courts; and his papers are reported in the *R. I. B. A. Journal*. On the whole, the courts in England still keep to the notion that the drawings belong to the employer. No longer ago than March, 1890, a London architect sued a client for time spent in professional service for him. The defendant made a counter-claim for the drawings; and the Lord Justice Fry said that he "thought the plans were the property of the employer, and therefore there would be judgment for the defendant on that claim." In the circular issued to competitors for the new Admiralty and War Offices, in 1883, it was expressly stipulated that all the plans, drawings, specifications and other documents relating to the works "should be the property of the Commissioners, and should be deposited at the Office of Works." In this case, of course, the intention was to exclude discussion of the point of ownership by a special agreement, and where it is desirable to keep the plans of a public building on file in the public archives, there is no objection to the stipulation being made. On the other hand, however, the custom of architects is not unfrequently recognized there, as it is here, by an express stipulation in programmes of competition, providing that the drawings shall remain the property of the architects. For example, the "Chapel Building Society" of England publishes a form of contract, which says that "The contractor will be supplied by the architects with complete copies of the signed drawings, of these conditions, and of the annexed specification. The originals of each shall remain in the custody of the architects, on behalf of all parties concerned."

IN the unsettled state of the law, Mr. Papworth thinks that architects are inclined to yield too suddenly to the threat of legal proceedings. An Oxford architect was once threatened with legal proceedings for the recovery of the working-drawings of a certain building, and, while asserting his right to keep them, gave them up rather than submit to the expense of defending a suit. On the other hand, where a similar demand was firmly resisted, the architect gained his case, on the ground of professional custom; and, where a Birmingham architect, on being summoned to give up the drawings of a building, did so, but sent an extra bill for them, it was immediately paid.

THE second annual competition for the Columbia Fellowship in Architecture, founded by the Trustees of Columbia College, in recognition of the generosity of Mr. Frederick A. Schermerhorn to the Department of Architecture of the College, has been awarded to Mr. Horace B. Mann, of Orange, N. J. The income of the Fellowship now amounts to thirteen hundred dollars, and the holder is obliged to spend the time covered by the appointment in travel and study abroad. The judges were Messrs. Richard M. Hunt, Charles F. McKim, and Thomas Hastings, Jr.

MR. ROSS TURNER, one of the most noted water-colorists in Massachusetts, who lives in Salem, has undertaken to make a beginning in what he considers a very necessary work—the education of the young in matters of art. For this purpose he has, with the consent of the School Board, and the assistance of some of his friends, taken in hand one of the public schools, and is filling it, so far as the means at his command will enable him, with beautiful objects of various kinds. Among these are large solar prints of photographs of Venice and Rome, and of fine buildings in other places, with some portraits of distinguished Americans, and, what architects will consider best of all, plaster casts of antique sculpture. Experienced readers will observe that this idea of Mr. Turner's is not altogether new. Mr. Ruskin, we believe, used to urge with special eloquence the importance of painting the walls of school-rooms with scenes calculated to inspire the youthful mind with a love of heroism and virtue; and, while we have some doubts whether historical paintings executed, according to law, by the lowest responsible bidder, would excite that ardor for the good and beautiful which Mr. Ruskin had in mind, photographs, let us say, of the cathedrals of Lichfield, Salisbury, Amiens, Rouen, Paris, Mainz and Cologne, and of some English mansions, and humbler houses from Picardy, Normandy and the Bernese Oberland, arranged on the walls of village school-rooms, would perhaps make the new meeting-house look a little tame, and take something from the perfections of the groceryman's "Queen Anne" habitation, to the great furtherance of architectural taste among the people who made the comparison. Beyond this, we are inclined to think that reproductions of sculpture would be most useful. Portraits of eminent Americans appear in such showers in the daily papers that the sight of them becomes monotonous; and it must be remembered that many of the newspaper cuts, such as those made for the *New York World*, and some of the other papers, have very considerable merit. In fact, within their limited field, they are infinitely superior to the productions of the "crayon artists," or the painted solar prints, which would generally have to do duty as portraits on school-room walls. The case with sculpture is very different. Nine-tenths, probably, of American school-children have never seen any specimen of sculpture more artistic than the Indian lady riding a bicycle in front of the cigar-store, and the field for one who desires to show them what beautiful carving may be is entirely clear. Of course, the antique furnishes the best material, but we all know the shocking habits of the ancient gods and goddesses, to say nothing of plain mortals, in regard to wearing clothes, and it is doubtful whether a Diane Chasseresse, decently clothed with tin pantaloons, by order of the school committee, in response to expostulations from all the most prominent citizens, would be aesthetically valuable, however it might be with its influence as an example of propriety. We should still have left, after casting out all the ancients whose costume was unsuitable for the virtuous to look upon, the busts of the Roman Emperors, together with some portrait figures of Roman ladies; but history might have something to say about making Tiberius and Agrippina the tutelary divinities of an American school-room, and art, and perhaps history, would be better satisfied with, let us say, some casts of the Panathenaic frieze from the Parthenon. With a little adaptation, such, perhaps, as painting the young men on horseback black, and adding tails, so as to make them suggest to the infant mind the comparatively inoffensive ape, and decorating the tunics of the Canephore with plaids or stripes, so as to exclude the thought of their looking like night-dresses, these might be made acceptable to a community not over-strict, and they could not be so disguised as to spoil them utterly. In the Florentine sculpture, however, much might be found

which would be very suitable. For children, who observe expression more than any other quality, good casts from Donatello, and the other first-rate Italian sculptors down to the Della Robbia, would be very interesting and useful; and, in the way of painting, it is quite possible that accurately colored reproductions from the Pre-Raphaelites would be better adapted than anything else to children's appreciation. Experience alone can show what sort of examples would prove best for the purpose; but, meanwhile, it is much to be hoped that Mr. Turner's lead will be followed elsewhere. Subscriptions for the adornment of a school-house should be easily raised, and, by a little coöperation among persons interested, a large selection of good examples might be placed at the disposal of committees, at a very moderate cost.

AT the closing exercises of the New York Trade Schools, a few days ago, Colonel Auchmuty made announcement of one of the noblest benefactions which even New York has ever seen. He said that he happened to be in the office of Mr. J. Pierpont Morgan, shortly before the latter sailed for Europe, and Mr. Morgan asked him if his Trade Schools did not need an endowment, by which they could be put on a permanent footing. As they have hitherto been maintained, not only by Colonel Auchmuty's untiring energy, but also, for the most part, at his expense, he could not deny that an endowment would be the means of continuing them after he could no longer give his time and money to them; and Mr. Morgan parted from him with the assurance that the money for the endowment was ready at any time. Soon after, a message was received, saying that Mr. Morgan had given five hundred thousand dollars as a permanent fund for the maintenance of the schools. This splendid gift secures the permanence of the unobtrusive, but efficient institution which is rapidly changing the condition of mechanics and the mechanic arts in New York, by sending out every year classes of young men who love their calling, who understand not only its practice, but the physical principles on which it is based, and who feel themselves capable of exercising it intelligently, if not of originating improvements in it. These men are not regarded with too much favor by the Union leaders, who find that their system of terrorism answers much better with the timorous and unambitious than with persons of energy and education; but the schools are now too firmly established in public favor to make it prudent to repeat the attempt of a few years ago to crush them openly, and covert attacks under the guise of politics are perhaps most to be feared. From even this apprehension, however, the great endowment will, in a measure, protect the schools; and if Colonel Auchmuty, when that time comes, which we all hope may be far off, when he can no longer carry on the work, can find a successor half as clear-sighted and energetic as himself, they will soon be a great and increasing power for good in the city.

ARIDICULOUS story is going the rounds of the newspapers to the effect that a "magnificent quarry of Caen stone" has been discovered in Georgia. It is quite likely that a magnificent quarry of stone has been discovered there, and not impossible that something like Caen stone may be found there later; but the product of the present quarry, as described, is ludicrously unlike the real Caen stone. According to the New York *Tribune*, it is "of a rich chocolate brown, slightly variegated," and "bricks made of it are worth fifteen cents each." Why any one should wish to make bricks out of Caen stone, or any other sort of stone, whether of "a rich chocolate brown," or not, is a mystery that is to us insoluble; but considering that a "brick" made out of the cheapest Connecticut sandstone would cost at least fifty cents, the estimate placed on these objects in the "Caen" stone does not speak highly as to its merits. The *Tribune*, with its usual affability in imparting information to its readers, mentions that Caen stone "takes its name from the city of Caen, France, where it has been quarried these seventy years." As Caen stone has been in extensive use for at least a thousand years, the *Tribune* has certainly not overstated the length of time during which the quarries have been worked; but it follows this assertion with others much more questionable, saying that "No stone is more eagerly sought for by builders"; and that "the Caen quarries are the only ones known to the world." The Caen stone is simply a very fine-grained oölite, of a beautiful light cream-color. It only differs from the Bath stone, Portland stone and other oölitic limestones used throughout England and France in its greater delicacy of texture and

color; and, even in France and England it is not much "sought by builders," for the reason that it weathers badly there, while it is totally unfit for exterior use in this climate. A building in Nassau Street, New York, has been for many years pointed out as presenting an example of it, but the fact of its continued existence, as well as its color and general appearance, indicates that it is probably of some harder oölite. The best specimen of real Caen stone in this country is to be found in the reredos of Trinity Church, New York, and a good deal of interior stone carving is executed in it, but for such purposes a dark-colored or variegated stone would be worthless. Whether the Georgian "chocolate-colored Caen stone" will be useful for anything else remains to be seen. There are plenty of good brown sandstones to be had, in nearly all parts of the country, and excellent limestones and oölites in the regions which do not possess sandstone; so that there would be little necessity for sending to Georgia for a brown oölite, particularly if it resembled Caen stone in weathering quality.

EVERY time the discovery of a new quarry of stone of fabulous value is announced, our regret becomes deeper that some one with a thorough knowledge of building stones could not be employed by an association of capitalists to study the quarries of the United States, with a view to their scientific and economical development. It is a favorite delusion with people who have a little money to invest, that a quarry is a good thing to invest in, and the delusion is, of course, fostered by the numerous body of persons who have quarries, or quarry lands, which they wish to sell. There is no doubt that good stone exists in the United States; but the difficulty of getting it into the market is greatly increased by the persistency with which stone of inferior quality is forced upon the attention of architects and builders. Many millions of dollars, for example, must have been thrown away in "developing" quarries of coarse-grained Georgia, or flinty Tennessee marble, or seamy serpentine, or knotty statuary marble, which might have been saved by asking and taking the advice of an expert as to the value of the quarries. Instead of this, it is the common practice to try to blind the eyes of the public to the obvious defects of stones by extensive advertising, and the public, which always favors American material, uses the native product for a few years, and then gives it up in disgust, retaining only the stones of sound merit, which might just as well have been picked out of the mass of inferior material before the quarries were opened.

WHERE is a prospect that the building of the New York Episcopal Cathedral may be begun this season. About one hundred and seventy-five thousand dollars are needed to complete the payment for the land, and when this sum is raised and paid over, the Trustees will feel justified in beginning building operations. It is understood that the choir will be the first portion erected, as has been the custom in such cases for many centuries. The choir itself will seat about fifteen hundred people, and will cost about nine hundred thousand dollars, so that, even if nothing more is done for several years, the Cathedral services will be tolerably well accommodated. It has been decided to create an endowment fund, for maintaining the Cathedral, and two large legacies have already been made to this fund; and the Trustees have taken the sensible step of providing that, after the sum expended in construction shall equal the endowment fund, further gifts or bequests, unless specifically intended for a particular object, shall be divided equally between the endowment fund and the construction fund, until the endowment fund shall reach three million dollars.

A TRUST, to be known as the Georgia Lumbermen's Association, is said to have been formed for the purpose of controlling the production and price of southern lumber. A meeting was held at Macon a few days ago, at which forty-five of the principal mill-owners were represented, and details of the conduct of the business were arranged. As in the case of other trusts, the business is to be controlled by a few officers, who are to apportion the work of cutting lumber among the different mills in the association according to their discretion, and are to fix uniform prices. What the effect of the combination will be upon prices remains to be seen. In the present dull condition of building, and of the lumber trade, it is not likely that any material advance will be made; but if anything should happen to revive business, the trust will prove a very convenient means of raising prices in proportion to the demand.

ARCHITECT, OWNER & BUILDER BEFORE THE LAW.¹—XXII.

SIGNATURES.



XVI Century Gaine, from the Cathedral of Laon, France. From Havard's "Dictionnaire de l'Ameublement."

A CONTRACT is the mutual agreement of two or more parties, and it is necessary to its validity that some evidence should be available to show that the parties understood their mutual promises in the same way, or, as the lawyers say, that "their minds met," and that they both, or all, consented to be bound by those promises. The best evidence of this is afforded by the signatures of all the parties to a paper in which all the terms of the agreement are fully written out; but this is not invariably required. A case² is described above (Page 6), where a man who was mentioned in a certain document as one of the signers, and who signed it as attorney for some one else, but not in his own name, was held to have also constructively signed it on his own account, because, in signing it as attorney, he must have read it, and seen that he was mentioned as a signer, but did not at the time protest and refuse to

SIGNATURE BY ONE PARTY ONLY.

sign. So, where one party signs it,³ and the other, although he does not sign, acts as if he considered the matter settled, and accepts the benefit of what is done for him under it, he is considered to have adopted and ratified it, and to be bound by it, as if he had signed it.

A curious case⁴ involving this point was decided in Maine. One Clarke slated a church roof, and warranted it tight for ten years, under a contract with the church building-committee, which, however, was signed only by one member of the committee. There was no vote of the parish authorizing the building-committee to make the contract in its name, but, when the work was done, the church paid the price mentioned in the contract. Afterwards, the roof began to leak, and Clarke was called upon to repair it, which he refused to do, on the ground that the contract was invalid. The Supreme Court held that it was invalid against the church, so that Clarke could not have recovered on it, if the church had refused to pay him the con-

tract price, but that, so far as he was concerned, it was valid, and he was bound by the covenants in it.

If either party is unable to write his name, he may sign a contract with his mark, some properly authorized person writing the name for him in the usual form close by; and this signature will be perfectly valid;⁵ but it has been held that where a contract is signed with a mark, the other party to the contract is not a proper person to write the name of the one signing with a mark, and that a signature so made is not a valid execution of the instrument.

A person who has signed a contract hastily, without reading it with proper care, or without reading it at all, cannot escape from it on that ground.⁶ The law is that if he was of mature age, and able to read and write, and had an opportunity to read the paper, and no artifice was used to induce him to sign it, he is bound by it, whether he read it or not; and it has even been held that the fact that the contract was in a foreign language, not very familiar to the signer, did not excuse him.

In a case⁷ in the District of Columbia, where the contract was partly in print, and partly in writing, and the written part only was read over to the contracting party, and he then directed his signature to be placed to the paper, it was held that he was bound by the agreement, although he neither read nor had read to him the printed matter; it being shown that he was able to read and write, and had an opportunity to read the printed part of the contract, and it was not fraudulently concealed or withheld from him.

It is well to remember that where a contract is partly written and partly printed, as is often the case with building contracts, the written provisions control, if there is any inconsistency between them and the printed part, the natural supposition being that more attention is paid by the parties to the written portion.

If two contracts,⁸ supposed to be duplicates of each other, prove to differ, if either party complies with the one in his hands, that one will be held to be valid.

After a contract is signed by one party and delivered to the other, the one who signed it is bound, even if the other does

PARTY SIGNING IS BOUND.

not sign it. In a New York case,⁹ a person who had signed a paper, on returning it to the messenger who brought it to him from the other party, said that he would only be bound by it if certain things were done. Before the things were done, he wrote, saying that he withdrew from the agreement, and would not be bound by it. The matter was brought to the Supreme Court, which decided that parol evidence of conditions qualifying the delivery was not admissible, and that the person who had signed the document was bound, although the other party had not signed it.

In the same way,¹⁰ where a contract which provided for payment by instalments had been signed by one party only, but had been ratified indirectly by the other party by the payment of some instalments, it was held that the contract was valid. Any ratification of this kind, if the court is satisfied that the parties really understood at the time that an agreement existed between them, is likely to be held to substantiate the contract, whether it is signed by both parties or not, and neither will be allowed, if he changes his mind, to escape on the pretext that his actual signature is lacking.

INFORMAL ACCEPTANCE OF PROPOSAL.

An allied case is that of a contract formed by proposal and acceptance, where the acceptance is informal. Under such circumstances, as with contracts of the regular sort, if one party gives the other reason to think that he has agreed to the proposition, he will find it hard to escape from it later on the ground that he had given no formal assent to it. In a Missouri case,¹¹ a man made a written proposition to do a piece of work on certain terms. The one to whom the proposition was addressed, without saying whether he had accepted or rejected the proposal, directed the other to go on and do the work. A

¹ Carlisle vs. Campbell, 76 Alab. 247. Wright vs. Dannel, 2 Camp. 203. Rayner vs. Linthorne, 2 C. & P. 124. Farebrother vs. Simmons, 5 B. & Ald. 333. Shaw vs. Finney, 13 Met. 453.

² Carpenter vs. I. N. Bank, 119 Ill. 352. Moore vs. Henry, 13 Mo. App. 35. Brown vs. Wabash, 18 Mo. App. 568. Robinson vs. Jarvis, 25 Mo. App. 421. Gwin vs. Waggoner, 38 Mo. 297.

³ Thompson vs. Riggs, 5 D. C. 99. Mansfield vs. Lowell, 62 Mich. 546. U. P. R. R. vs. Graddy, 25 Neb. 354.

⁴ Judd vs. Ensign, 6 Barb. 258.

⁵ Stephen vs. Buffalo, 20 Barb. 332.

⁶ Reedy vs. Smith, 42 Cal. 245. Memory vs. Niepert, 131 Ill. 623. Fairbanks vs. Meyers, 98 Ind. 92.

⁷ Burch vs. New Lindell, 7 Mo. App. 583.

⁸ Continued from No. 845, page 152.

⁹ Kerfoot vs. Cronwell, 115 Ill. 592.

¹⁰ Stone vs. Rennock, 31 Mo. App. 544.

¹¹ M. E. Parrish vs. Clarke, 74 Maine, 110.

controversy having arisen later about payment, it was held by the Court of Appeals that the terms of the proposal formed the contract between the parties, and that the party making the proposal might recover in accordance with it.

Where, however, one party¹ signs, and the other neither signs nor does anything else, within a reasonable time, to indicate that he assents to or adopts the agreement, the matter lapses, and neither party is bound.

DELIVERY OF CONTRACT.

The delivery of a contract may be a very informal matter. If the paper is left at the store of the merchant, the shop of the mechanic or manufacturer, or the farm of the farmer, who is a party to it, the delivery is complete, unless the contract itself specifies some place or mode of delivery.² In fact, it is not essential that the document should be delivered at all. In an Illinois case,³ the only copy of the contract that was signed was left with the architect, for the benefit of both parties; and it was held that this was all the delivery that was necessary.

CONTRACTS WITH CORPORATIONS.—DIFFERENCE BETWEEN CONTRACTS WITH CORPORATIONS AND PRIVATE INDIVIDUALS.

Although a contract with a private individual is a very informal affair, and almost anything will be regarded as a proper signature which shows the intention of the parties, it is very different where a corporation is one of the parties to the agreement. While a private individual may enter into any sort of contract that he chooses, so long as it is not immoral, and will be held to the fulfillment of any promise in consideration of which he has received benefit from another, the powers of corporations are strictly limited, either by their charters or by statute, and they cannot be compelled to carry out promises made by their officers beyond the bounds of their authority, no matter what may be the hardships inflicted upon the persons who have incautiously trusted them.

NECESSITY FOR CORPORATE SEAL.

In England, and formerly in this country, not only must a contract entered into by a corporation be within the scope of its authority, but, besides the signatures of the proper officers, the seal of the corporation must be affixed to the agreement to make it valid, unless some special statute has authorized the seal to be omitted. A story was told in the English papers a few years ago illustrating this point. A young architect made plans for a school-house for a town. After some discussion, his plans were adopted, and, by a formal vote of the proper officers, he was appointed architect of the building. The work was carried out under his direction, to the satisfaction of everybody concerned, and, when all was completed, he sent in his bill, payment of which was coolly refused, on the ground that his appointment was not under the corporate seal of the town, and was, therefore, invalid. The school officials did not pretend that the architect had not done his work properly; on the contrary, they said that they were perfectly satisfied with it, but, as the corporation could not be bound without the seal, they did not propose to lose the benefit of the omission, and the architect would have to get along without his money as best he could. The latter brought suit, and must inevitably have been defeated had it not been discovered that a special statute, which the astute town officers had probably forgotten, expressly authorized towns, for the purpose of facilitating the erection of schools, to make contracts in regard to them without the seal; and, as the engagement of the architect came within this statute, the town was, in the end, compelled to pay the bill with costs.

In this country, the contracts of corporations, signed by the proper officers, and made in accordance with the statutes or charters regulating the affairs of the corporations, may be considered as valid without the seal. In many of the States decisions⁴ have already been given in accordance with this view, and it is probable that the example would be followed in the others if occasion should arise.

It is, however, very necessary that, with or without the seal, the contract should be within the authority of the corpora-

tion, and of the officers who claim to represent it, and our courts hold that it is the duty of the person who wishes to make a contract of the kind with a corporation to inform himself on this point; and that, if he fails to do so, the corporation cannot be held liable for losses which he may suffer in carrying out an agreement entered into without proper authority. The town of Bridgeport⁵ once appointed by vote a committee to procure plans and estimates for a high school, and to contract for the erection of the building at a cost not to exceed \$55,000. A contract was made with one Turney for the main part of the work, but the heating, ventilation and plumbing were excepted from his contract, and taken by other parties, at an agreed price. In the written contract with Turney, the vote of the town was recited. His contract, exclusive of the heating, ventilation and plumbing, was \$42,250. After the school-house was finished and occupied, he demanded \$35,000 more, saying that he had spent \$26,500 above his original contract price, and claiming that the committee and the Board of Education had made a new contract with him, promising, and binding the town, to pay more than the \$55,000, and that under this contract he had spent the extra money. The Supreme Court of Connecticut held that "It is clear beyond discussion that when a town, by a legal vote, limits the amount of an appropriation for a particular and specified purpose, and by the same vote appoints a committee to carry that purpose into effect, such committee has no implied authority to involve the town in any extra expense whatever." This, the court said, followed from the peculiar character of a town corporation, and the fact that the property-rights and interests of each inhabitant were involved in every contract made by, or on behalf of the town. "The town cannot contract except by vote passed at a legal town-meeting, or in strict accordance with the positive provisions of some statute. If committees could bind the town beyond the appropriations," said the court, "the property of the inhabitants would be at the mercy of combinations between committees and contractors."

The plaintiff's counsel argued that the town was enjoying the benefit of the result of his labors; but the court held that this argument was not good, as the town had a right to do so, without incurring liability. In regard to the question whether Turney, having been informed of the amount of the appropriation, was obliged to concern himself about the other contracts, to see whether there would be money enough left to pay him for extra work ordered by the committee, the court said that, having notice of the vote, he was "put on inquiry" as to the cost of works not included in his contract, and was bound to see whether the total exceeded the sum appropriated.

A very similar controversy⁶ occurred in connection with the building of the Illinois State-House. The statute of 1883, relating to the completion of this structure, provided that all contracts for labor and materials requiring the expenditure of more than \$500 should be let to the lowest responsible bidder or bidders, after advertising for bids or proposals for at least thirty days, and that contracts entered into contrary to this provision should be null and void.

The State-House Commissioners obtained some models for statuary, at a cost of \$2,400, and accepted a proposition of Poulson & Eger, of New York, to execute them in metal, by the galvano-plastic process, for \$7,600. No advertisement was published which could be interpreted as inviting bids for statuary, and only one statue was sketched on the elevations of the building, and nothing was said about statuary in the specifications. Moreover, a "manufacturer of metal statuary," Mr. Mullins, who made a bid on the ornamental ironwork, found no mention of metal statuary in the specifications, and was not invited to bid on any. On the contrary, one of the Commissioners told him that the statues, one of which was shown in sketch on the elevation, were to be of plaster. If Mr. Mullins had known of the letting of the contract for this statuary, he would have put in a bid for it, as his firm was particularly anxious to get this sort of work. The architect testified that it was not decided what metal to use for the statues until Poulson & Eger's bid was in, and that it was accepted two days later, showing that thirty days' advertisement for bids could not have been made. There was evidence that the price agreed to be paid to Poulson & Eger was \$2,800 or \$3,000 above the reasonable value of the statues. Theirs was the only bid.

Suit was brought to enjoin the Commissioners from issuing

¹ Keller vs. Bladell, 1 Nev. 492.

² Bronson vs. Glendon, 7 Barb. 472.

³ Coey vs. Lehmann, 79 Ill. 173.

⁴ Merrick vs. Burlington, 11 Iowa, 75. Barlow vs. Gray, 57 Mich. 623. Bank of Columbia vs. Patterson, 7 Cranch 305. Fleckner vs. Bank of United States, 8 Wheat. 338. McCulloch vs. Talledega Ins. Co., 46 Alab. 376.

⁵ Turney vs. Bridgeport, 85 Conn. 412.

⁶ Little vs. Jayne, 124 Ill. 123.

vouchers for the payment of the money to Poulson & Eger. The Appellate and Circuit Courts refused the injunction, but the Supreme Court reversed their decision, thus requiring the injunction to be issued.

A case¹ of the same sort, described in the New York Reports, has an additional interest as furnishing an illustration of the famous "unbalanced bids," which at one time were said to have been the means of transferring a good deal of public money into pockets where it did not belong.

UNBALANCED BIDS.

The charter of the City of New York provides that all work done for the city, and involving the expenditure of more than \$250, shall be done in pursuance of a contract, awarded upon sealed bids; and that all such contracts shall be awarded to the lowest bidder. In 1854, the Street Commissioner was authorized by a resolution of the Common Council to invite proposals for setting curb and gutter stones, and flagging the sidewalk of a portion of Eighty-third Street. The invitation to bidders described the curb and gutter, and the flagging required, and specified the kind of stone to be used, and the manner of cutting and laying. It stated also that "the street is to be brought to the grade shown on the profiles in the Street Commissioner's office; the sidewalks to be regulated with sufficient rise from the curbstone, and the carriageway to be properly shaped under the direction of the surveyor." It further required that "estimators should state in their proposals the price per running foot for furnishing and setting curb and gutter stones, including regulating and removing or furnishing earth; the price per square foot for flagging, including the regulating of the sidewalks, and furnishing sand or gravel; also, the removal of all surplus material or rubbish after the completion of the work; and the price per cubic yard for removing rock, if any should be found." The notice then continued, "The following is the estimate of work and materials by which the work will be tested, viz: 3,840 running feet of curb and gutter stone, and 15,600 square feet of flagging."

Brady offered to set the curb and gutter-stones at forty-five cents per running foot; to do the flagging for eleven cents per square foot, and to remove rock for twenty-five dollars per cubic yard of rock removed. One McCabe made a proposal to remove rock for five dollars per cubic yard, and to do the other work at prices somewhat higher than Brady's. Two other proposals were received, neither of which included a price for removing rock, and both of which appear to have been higher for the rest of the work than Brady's. Brady's was accepted, and a contract made with him. The work was done and accepted, and an assessment for the cost laid on the abutters, and confirmed by the Common Council. The bill was as follows:

4,046 ft. 6 in. of curb and gutter @ 45c.	\$1,820.92
15,686 ft. of flagging @ 11c.	1,725.46
943 yards of rock excavation @ \$25	23,575.
	\$27,121.38

Payments were made on account to the amount of seventy per cent of the bill, but payment of the balance was refused, and Brady sued for it. A referee, appointed by the court, found that the contract was illegal, so far as regarded the rock excavation, but that, as it had been done and accepted, Brady was entitled to the money on *quantum meruit*. The Supreme Court, however, decided that the contract for rock excavation was illegal and void, and imposed no obligation on the city as to any of its stipulations.

There are many other cases² which illustrate the same point, and contractors cannot be too careful to see that proper authority has been given for all the contracts which they make with public officers, and all the orders which they receive from them, if they wish to be sure of getting their pay for what they do. In the words of one court: "It devolves on those seeking to enforce a public contract to show that it is within the 'statutory authority, while a private contract is presumed to be 'valid.' And another says: 'All persons contracting with a 'municipal corporation must, at their peril, inquire into the 'power of the corporation to make contracts.'"

Moreover, it must be remembered that an association may

not be incorporated, and, unless incorporated, it cannot be sued, and debts which it owes cannot be recovered. Church societies, in particular, often exist for years without legal incorporation, and persons transacting business with them do so at very considerable peril. It is often thought that if the corporation or society is not legally liable, the persons who represented them in making the contract must be individually liable, so that the contractor is sure of a remedy against some one; but this idea is very far from being correct. In a case³ in Georgia, where both these points were involved, the Supreme Court said that "A church society, unless incorporated, cannot 'be sued.' Members acting as agents of the society are not liable for its debts unless they individually promise, for a consideration, to pay them. It is so easy to incorporate, and to ascertain whether such a body is incorporated, that 'if men 'will make business transactions of the character disclosed by 'this record, they must take the consequences.'"

EXTRAS IN PUBLIC CONTRACTS.

Orders for extra work under contracts, or for work of any kind, come under the same rule as contracts, and must be properly authorized, and given by the proper officers, and in the proper manner, to impose any obligation on the corporation. During the construction of the Chicago Court-House, the County Board passed a resolution instructing a contractor,⁴ Sexton, to build a foundation for a dome, under the supervision of the architect, and subject to the architect's valuation. The resolution was accepted by the contractor, and the foundation built, and it was held by the Supreme Court that this was a valid contract. After the foundation was done, however, the architect and the joint committee of the city and county authorities ordered the wall of the dome to be carried up to the roof. The contractor obeyed, and the county authorities saw the work going on without objection, and even paid for a considerable part of it, but, on their refusal to pay any more, it was decided that the order for the work above the foundation was not binding on the county, although the county authorities had in part ratified it by allowing it to go on without objection, and making payments on account of it.

PUBLIC CONTRACTS MUST BE MADE WITH DUE FORMALITY.

Not only can nothing be recovered on a contract illegally made with the representatives of a public body, even if the work is entirely performed, but the agreement, where it is within the legal authority of the officials who make it, must be made with due formality, or it will not be binding on the corporation which they represent. It has been held⁵ that an agreement made by County Commissioners, not at a regular meeting of the Board, but in vacation, was not binding on the county; and, where the individual members had separately signified their assent, this was held to be insufficient.

Where work is carried on for a corporation under the direction of a building-committee,⁶ the majority of the building-committee must concur in making any contract, or in varying one already made.

In certain other respects, the rights of a contractor against a corporation are much more restricted than they are against a private individual. For example, no mechanic's lien can be maintained for work on a public building, such as a public school-house, court-house, jail, town-hall and so on; and the property of corporations other than towns, counties or States, where it is used for the public service, as in the case of railway cars and stations, ferry-houses and similar structures, is exempt from mechanic's lien.

CORPORATION CANNOT ASSUME CONTRACTOR'S DEBTS.

Even with the consent of the proper officials, the debt of a contractor cannot be assumed by the public corporation which they represent. In a case in Indiana,⁷ where a building was in process of construction for a county, the contractor abandoned his contract. The County Commissioners took possession of the building, and finished it, without letting a new contract. In a suit afterward on a claim for materials furnished to the original contractor, it was held that in such cases the county was liable for labor and materials furnished at the request of the Board, and used in the completion of the building; but

¹ Brady vs. Mayor, 18 N. Y. P. R. 343.

² Chicago vs. Shober, 6 Brady, 500. Whiteside vs. U. S. 83 U. S. 257. State vs. Hayes, 52 Mo. 578. Delafield vs. State, 26 Wend. 238. People vs. Bank, 24 Wend. 431. Mayor vs. Reynolds, 20 Md. 210. Southworth vs. Flanders, 33 La. 190. Sanborn vs. Neal, 4 Minn. 128. Keating vs. Kansas City, 81 Mo. 415. Leecher vs. Commissioners, 9 Mont. 315. Dement vs. Rokker, 26 Ill. 174.

³ Wilkins vs. Wardens, etc., 52 Geo. 315.

⁴ Sexton vs. Cook Co., 114 Ill. 174.

⁵ Campbell vs. Brackebridge, 8 Ind. 471. Archer vs. Commissioners, 3 Ind. 501.

⁶ Eigemann vs. Board, 82 Ind. 413.

⁷ Howard vs. Ind. School, 78 Maine, 230. Asylum vs. Johnson, 43 Maine, 180.

⁸ Bass vs. Board, 115 Ind. 234.

that the Board had no power to assume any indebtedness of the contractor for materials furnished to him, and that for such indebtedness the county could not be made liable.

PUBLIC CORPORATION NOT OBLIGED TO CARRY OUT ITS CONTRACTS.

In a similar way, a public corporation is to a certain extent exempt from the usual obligation to fulfil its contracts. A contract¹ was once made for a public building for the State of New York. The contract was made in due form, but for some reason the erection of the building was postponed. The contractor brought suit to compel the State to go on with the building according to the agreement; but the Court of Appeals decided that the State could not be compelled to proceed with the erection of a public building at the instance of a contractor. If the State broke the contract, the contractor, if not himself in default, would have a just claim for damages, but his remedy would be by a petition to the Legislature for the satisfaction of his claim.

LIABILITY OF INDIVIDUAL OFFICIALS.

A contractor who incautiously enters into a contract with persons claiming to represent a corporation, but who turn out to have been insufficiently authorized, or not to have made the agreement in legal form, may sometimes, if he fails to collect his pay from the corporation, get redress from the individuals who led him to think that they had proper authority for employing him. There is, in fact, often a question whether the contract for a public building is really a contract with the corporation for whose benefit it is to be built, or a personal contract with the individuals who sign it, and it is very much for the advantage, not only of the contractor, but of the people who act as members of building-committees, that this point should be clearly settled before the agreement is signed. Three persons, signing themselves as "School Directors," made a contract² for the erection of a public school-house in Illinois. The town had appropriated \$700 for building the school-house, and the town treasurer paid drafts drawn by the school directors to that amount. A draft was given by the directors for a balance of \$224.60 beyond the \$700, but payment of it was enjoined, on application of some of the tax-payers. A suit was brought for the money against the directors personally, and they were held liable, as it did not appear in the contract that it was the contract of the town, and the Court held that the words "School Directors" after the names of the signers were merely descriptive.

A similar, and very instructive case,³ was decided in Massachusetts. The town of West Brookfield, at a town-meeting held January 24, 1863, passed a vote to finish the basement of the town-house according to a certain plan, at an expense not to exceed \$500, and chose Lemuel Fullam, John M. Fales and Augustus W. Gilbert as a committee to contract for the work. This committee accordingly made the following contract with William Fullam:

WEST BROOKFIELD, MASS., January 27, 1863.

We, the undersigned, a committee chosen by the town of West Brookfield to finish the basement of their town-house for the purpose of a meat-market, do hereby agree to pay Mr. William Fullam, of North Brookfield, Massachusetts, the sum of four hundred and seventy-five dollars for the finishing of said basement according to specifications and plan annexed, when completed to our acceptance.

LEMUEL FULLAM [Seal],	} Committee for the Town.
JOHN M. FALES [Seal],	
AUGUSTUS W. GILBERT [Seal],	

January 31 another town-meeting was held, at which the town voted to rescind its former vote, and chose a committee "to confer and settle the matter with the contractor." The contractor refused to stop work, and the town obtained a perpetual injunction, restraining him from proceeding. The contractor then sued for damages for being prevented from fulfilling his contract. The case was carried to the Supreme Court, which held that the contract was not the contract of the town, but only of the individuals who signed it, and that the plaintiff's remedy, if he had any, was against them, although they, if he recovered damages from them, might look

to their principals for indemnity. The action of the town, in revoking its original vote, and preventing the completion of the work, was held not to make it liable in damages to the contractor. The Court remarked that it appeared to be the law of New York⁴ that where an agent, duly authorized to make a contract for his principal, made the contract in his own name, he was not liable for a breach of it, if the contract was for the exclusive benefit of the principal; but it said that this was not the law of Massachusetts, or of England.

In this case, although the corporate seal of the town would not have been necessary to legalize the contract, if it had been otherwise properly made in behalf of the town, the fact that the individual members of the committee affixed their private seals seems to have confirmed the character of the instrument as their own contract, and not that of the town, but the seals alone would not have given it that character without warrant from the language of the contract.

In regard to the liability of the members of a committee which finds itself in such a plight as the West Brookfield one, it has been held in Illinois⁵ that where a church building-committee had contracted for the erection of a church building, and the names of the members were given in the contract, but one member did not sign the contract, that member was not personally liable under the contract.

The New York law, as before mentioned, is more favorable to members of building-committees and similar bodies. Where certain persons had been appointed a building-committee⁶ by a corporation, and were authorized as such to contract for the erection of a building for the corporation, it was held that a contract for such purpose, entered into by them in their individual names, but describing them as "building-committee" wherever their names occurred, was not binding on them personally, but on the corporation.

It will be seen from these cases that he who makes a contract either for or with a corporation, either public or private, should do so with great caution. Many corporations are formed for the purpose of evading liability on the part of the men who practically own and manage them, and who, by placing most of the stock in the hands of irresponsible dependants, can, without risking their own property, pile up debts against the corporation which can never be collected, for lack of corporate assets to pay them with; and even where a corporation is formed and managed in good faith, the directors have no right, out of a mere sentiment of honor, to pay away the stockholders' or citizens' money to persons who have no legal claim to it.

[To be continued.]

THEATRE BUILDING REGULATIONS. — I.



From the British Architect.

IN presenting the following papers to the readers of the *American Architect*, I should explain that my object in preparing this series has been to collect and compare the regulations of different countries with regard to theatres, in such a form that they may be used for reference by any architect wishing to compare the requirements of one country with the requirements of another. In every fresh set of rules I have studied, I have found some new points worth noting, or a further development of a detail, perhaps only touched upon elsewhere.

At the end of these papers I have quoted to some extent certain rules which may be truly said to be strictly rules of management and not building-laws at all. My excuse, if any be needed, for inserting them, is that they, one and all, teach the architect what to provide for and what to avoid in designing a theatre. The chapter upon "Fire Appliances," for instance, contains elaborate instructions as to the duties of the firemen, but between the lines it tells us the position in which hydrants should be placed, the necessity of a guard-room and electric alarms thereto from all parts of the theatre, etc.

In many places I may be accused of repetition and of quoting

¹ Lord *vs.* Thomas, 64 N. Y. 107.

² Sharp *vs.* Smith, 32 Ill. App. 336.

³ Fullam *vs.* West Brookfield, 9 Allen, 1. Damon *vs.* Granby, 2 Pick. 345. Abbey *vs.* Chase, 6 Cush. 56. Huntington *vs.* Knox, 7 Cush. 378.

⁴ New York Cases: Randall *vs.* Van Vechten, 19 Johns. 65. Bank of Metropolis *vs.* Gutteschick, 14 Pet. 19. Broadway *vs.* Allen, 17 Wead. 40. Bank of Columbia *vs.* Patterson, 7 Cranch. 365.

⁵ Thomas *vs.* Caldwell, 50 Ill. 138.

⁶ Haight *vs.* Sahler, 30 Barb. 218.

certain rules twice over where the same regulation occurs in more than one set of regulations, but by the careful reader, there will always be found hidden away in the didactic language of the laws, some material point or difference between the rule of one country and the rule of another.

The necessity of constant revision of the laws in relation to the building and managing of places of public entertainment, will doubtless be observed in many instances, where the regulation has grown out of date by reason of some improvement, discovery or invention in construction, materials or planning. It appears unwise to specify in any code of rules any one particular method or means of attaining a desired end: far better describe the object to be gained, and leave the method of gaining it to be decided upon and approved in each individual case. In explanation, it is not wise to describe the character of a fireproof floor: fireproof floors are still in their infancy; new patents appear every year, some perhaps better, some perhaps worse, than those already in the market: another example, door-fastenings; again, fireproof curtains, all these and other details in theatre construction are subject to the growth of scientific knowledge and improvement; in a few short years an invention or patent is sadly out of date, and a regulation describing any special detail is out of date also.

Nowhere, perhaps, will this assert itself more than in the rules laid down for the guidance of the electric-light engineer in London theatres. If fireproof construction may be looked upon as still in its infancy, what must I say of the electric light — that it is hardly born? We know not yet what is the power of electricity or the extent of its use. Rules about electric lighting must soon become antiquated with the rapid growth of this precocious child.

I fear these arguments may be justly turned against me, and I may be accused of presenting papers which will rapidly go out of date, I can only answer that I have tried to give all the information that I have acquired on the subject, which has taken me years to procure, and that the information at any rate has the merit of being up to date, a quality I trust which may be appreciated in America, as the rules of the London County Council, which form the backbone of the articles, bear so recent a date as February 9, 1892.

PART I. ORIGIN OF REGULATIONS.

I think one may safely presume that there is not a country in the civilized world, where building operations are under either municipal surveillance or government jurisdiction which does not insist upon some special rules and regulations appertaining to theatres and places of public entertainment and resort.

The necessity of supervising the planning and construction of buildings of this class under strict and arbitrary rules has already been fully pointed out in my papers on "Theatrical Architecture" which have been published in the *American Architect*.

It had long been my intention to make a digest and comparison of the building-laws in relation to theatres which are in existence in the different quarters of the globe, and after some years of labor in collecting the information I have been hastened to undertake the task, by the invitation of the editor of this journal to do the work and by the fact that London has so recently been furnished with the new regulations for theatres framed and issued by the municipal governing body, the London County Council. These being the latest of such laws issued by any country, may be expected to be the best of their kind. It is not my intention, nor within my province, to criticise them, my duty is to make cross-reference of them and the building-laws of other countries. I may therefore be permitted, for the sake of order, to take the new rules of the London County Council *seriatim* and use them as pegs whereon to hang the regulations of other countries and any short comments found necessary.

I have found great interest in comparing and studying the world's views as to how a theatre should be built, and although in the main, the broad principle of protection from fire and panic is the same the wide world over, yet there are very many details of planning and construction where the authorities of one country differ widely from the powers of another.

The government of theatre building in London is under the London County Council, as successor of the Metropolitan Board of Works, and the powers of making, altering and revising regulations is given this body by the Act of Parliament known as the "Metropolis Management and Building Acts, Amendment Act 1878," which enables the Council to frame rules for the protection from fire of theatres, houses, rooms and other places of public resort within the administrative County of London to be kept open for the public performance of stage plays, for public dancing, music or other public entertainment of the like kind licensed either by Her Majesty, the Queen, the Lord Chamberlain of Her Majesty's household or by the London County Council.

I should explain that there are certain theatres, some two or three only in number, which hold their license by Royal letters patent, for instance the Theatre Royal, Drury Lane, the Royal Italian Opera House, Covent Garden, Her Majesty's Theatre Royal, Haymarket; then there are other theatres within a defined radius which receive a yearly license from the Lord Chamberlain, and finally, all outside this boundary are licensed by the London County Council who also give all music and dancing licenses at their annual October licensing sessions. These rules, therefore, which we are about to peruse apply to all London theatres, music-halls, casinos, cirques, dancing-rooms or any public room where music or music and dancing is carried on.

On the Continent the rules are formed and enforced by various bodies. In Berlin the regulations in force for the "protection of theatres and the by-laws relating to theatres, music halls, and other places of public amusement" are issued by the local police authorities.

In Vienna the regulations "against fire in theatres" are elaborated by the Vienna Board of Works: while the by-laws "relating to theatres, music-halls and other places of public amusement," in the department of the Seine and Seine et Oise, are framed and decreed by the Député Prefect of Police under powers conferred by various acts of Parliament dating from 1790 to 1864. These rules were issued from Paris in 1881, on the reports of the superintending architect of the Prefecture of Police, the Colonel of the Fire-Brigade, and the Council of Public Health and Sanitary Affairs, and were intended to supersede all previous laws which had become obsolete. The motives which governed the Député in framing the rules were the importance of effectually securing complete freedom of movement to the public in theatres, the necessity of requiring, both in the construction and regulations of these buildings, such conditions as should render the exit of the spectators as easy and as rapid as possible, and the possibility of procuring additional means of security against fire by constant service of water, and industrial processes for rendering textile fabrics and other materials unflammable.

The regulations for Hamburg were framed by the Police authorities. With regard to those in force for new theatres in lower Austria, they are administered by a "Committee of Safety" which I shall speak of hereafter.

The Brussels theatre regulations are prescribed by the several departments of the Local Authority, which are authorized to adjudicate upon applications for permission to erect or convert any building or erection for theatrical performances.

In Italy, the "Italian theatre regulations" are issued from the Department of Public Safety of the Home Office in Rome, with an address dated June 17, 1887, from the Home Secretary to the "Prefects" impressing upon them that they should pay special attention to the protection of the public from the risk of fire in theatres, and pointing out that the government had been impressed with the serious nature of this question, which was one of the most important affecting the public safety; but the Home Secretary said "if one called to mind the complaints in the public press and from private individuals which frequently reach the government, there was reason to fear that in many cases proper energy had not been exhibited, and that regard for private interests had frequently made the danger to the public appear less real and less to be feared than was actually the case." The address goes on to say that "the recent serious accident which occurred at Paris, and those also, of which we have still a painful recollection, at Nice and Vienna, are admonitions to us not to tempt Providence, and to take such precautions as will minimize the danger to life in the case of the occurrence of an accident."

I have quoted the last part of the letter in full, because the importance of precaution is as great now as when Signor Crispi, the Italian minister, issued his circular to the "Prefects" in 1887. After this preliminary, it will surprise no one to find that the Italian regulations are very stringent.

The St. Petersburg Municipal Council are answerable for the rules observed in the capital of Russia for the control of theatres.

I shall in all probability have to refer to the laws of the Antwerp commissioners, to those of Mons Board of Works, and the rules enforced in Ghent as well as those of New York City.

I have dwelt rather fully on the powers from which the laws governing the building of theatres proceed, but I have done so to show how many and how variously constituted are the "powers" which have framed the world's laws relating to theatres. It appears to me a very impressive point in studying the question of how a theatre should be governed, that so many different bodies in different countries have in a broad sense arrived at the same conclusion, with regard to the precautions that should be taken. They differ only in details as the exigencies of the case demand.

The origin of nearly the whole of the regulations referred to above was doubtless due, as quoted in Signor Crispi's letter, to the disasters of Nice and the Ring Theatre, most of them bearing dates after these catastrophes. It is, often, events such as these that awaken the whole world to a sense of responsibility; but before long, when the harrowing details of death are no longer fresh, they lapse into a state of inaction, awaiting a fresh disaster to awaken a desire for more stringent government and more strict rules. But to my mind it is not in time of excitement that such rules should be made and enforced, but in time of peace, when every detail can be carefully considered with all its *pros* and *cons*. It is therefore now that I bring before the readers of the *American Architect* the world's laws in relation to theatres.

[To be continued.]

EXPORTATION OF ANTIQUITIES FROM ITALY.—It is said that during the last few months there have been sold to go out of Italy 8,000 paintings, 1,000 works of ancient sculpture, 80,000 pieces of money, and about 100,000 other objects, such as furniture, silver, antique arms, stuffs, etc., all belonging to Prince Torlonia. — *New York Evening Post*.

EQUESTRIAN MONUMENTS.¹—XLIX.

Charlemagne, Paris, France. Rochet Freres, Sculptors.

AS this inquiry has been conducted along the line of historical groupings and as the last historical event of prime importance was passed while reviewing the works of equestrian sculpture that commemorate the founding of the new German Empire, this method must now be abandoned, and in the short remainder of the task a more miscellaneous treatment must be followed.

Since taking part in the Crimean War, England has ceased to make the kind of history that equestrian statues have usually been created to emphasize: her later achievements have been, in the main, peaceful conquests of commerce and diplomacy, and the Queen has not had to do wrong to her woman's nature by assenting to bloodshed and war—war at least where civilized man was like to suffer much. But the parts which the Queen and her husband have played have not been altogether insignificant, and a loyal people,

still believing to a degree in royalty, have dutifully given expression to the feeling by erecting two equestrian statues of the Queen, and, in conjunction with the Queen herself, have immortalized the Prince Consort with more than thrice that number of statues.

In front of St. George's Hall at Liverpool stand two large and expressionless statues of the royal pair modelled by Thomas Thornycroft, erected, the Queen in 1870, the Prince Consort in 1866, at the expense of the municipality, while another pair of statues by Marochetti grace opposite sides of George Square in Glasgow. Here the Queen's statue, erected in 1849, takes precedence in point of time over her husband's, which was erected in 1870. The Liverpool statues are of value, perhaps, since they give evidence as to the riding costumes—male and female—of the period, while in the Glasgow statue of the Queen is found one of those rare instances where the regal insignia are introduced to give a greater pictorial value to the sculptor's work. There are not many instances where a monarch on horseback is shown wearing a crown: this one of the Queen at Glasgow, King Ludwig I of Bavaria at Munich, Isabella at Madrid, Charlemagne at Liege and again at Paris, Constantine at Rome and Stephen the Great at Jassy—not one of whom, curiously enough, has there been as



Queen Victoria, Liverpool, Eng. T. Thornycroft, Sculptor.

yet occasion to mention—all wear the crown and some the royal robe as well; but apart from these the general practice has been to adopt some more everyday garb or else to exhibit the subject in a still more unnatural state of bareheadedness.

The statue of the Queen at Glasgow is a pleasing one, and the

¹ Continued from No. 847, page 185.

regal attire does not come amiss. A cast in plaster of this group can be seen in the Crystal Palace at Sydenham by those who do not care to journey farther north. What has become of James Wyatt's



Prince Albert, Liverpool, Eng. T. Thornycroft, Sculptor.

plaster models of the Queen and Prince Albert that were shown at the Exhibition of 1851 is not known.

The latest equestrian statue of Prince Albert is the one² modelled by Boehm and erected in Windsor Park in 1890. Earlier than this [1876] was the memorial group³ by Sir John Steell at Edinburgh, while Bacon's statue [1873] on the Holborn Viaduct in London is, in spite of its position where thousands upon thousands pass it daily, probably the least observed piece of sculpture in the world. Besides these, copies of Thornycroft's statue at Liverpool were set



Queen Victoria, Glasgow, Scotland. Marochetti, Sculptor.

up at Halifax and Wolverhampton. The Prince, while very likely an admirable husband and adviser, was not a subject capable of inciting a sculptor to do a noble piece of work.

An antique amazon or two and a few modern ladies of similar

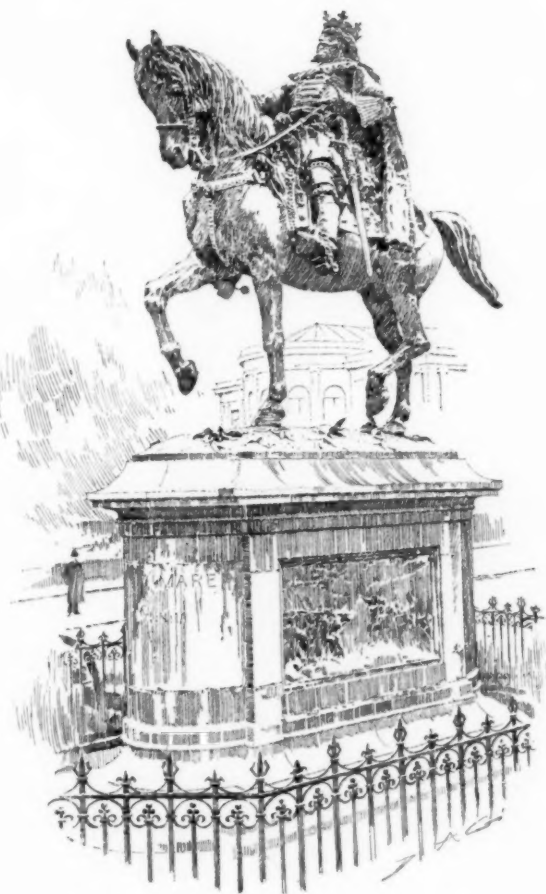
² See the *American Architect* for January 10, 1890.

³ See the *American Architect* for October 1, 1887.

activity, and now and then a Muse, Joan of Arc, Lady Godiva and Queen Victoria are with one exception the only women whom



Prince Albert, London, Eng. Bacon, Sculptor.



Stephen the Great, Jassy, Moldavia. Frémiet, Sculptor.

sculptors have modelled on horseback: this exception is found in the statue of Queen Isabella at Madrid by Oms, where the leading

figure receives the support of Gonsalvo, the Great Captain, upon one side and on the other Cardinal Mendoza, each serving as guide and guard, after the manner of the two little pages who at Munich conduct the horse upon which Ludwig I rides, or of Roland and Oliver at Paris who have each a hand on the bridle-rein of the aged Charlemagne—the group for which the unfortunate Brothers Rochet have been unable to find a purchaser, the survivor being even unable to pay the award made by the court in favor of the contractor who was good-natured enough to provide the temporary pedestal in the Parvis Notre Dame some years ago so that the municipal authorities might decide whether they would purchase the group or not. The authorities and their several-times-removed successors are still undecided, yet the public enjoys the privilege of regarding the group—an interesting one in some ways—while one brother is dead, the other ruined, and the friendly contractor crippled in his resources, and all this in a city where artists usually receive fair consideration. Whencesoever the author of the group at Madrid derived his conception, his treatment is the most poetical and satisfactory of the three, and seems a not unworthy presentation of the Queen whom Americans have always regarded with a kindly feeling. Perhaps some one has suggested procuring a copy for the festivities at Chicago; if not, it is one of the obvious things



Prince Esterhazy, Forchtenstein Castle, Hungary.

that have been forgotten: not that Americans would care to honor Mendoza or da Cordova, but they do have a real respect for womankind, and in this group it is the female and not the male element that attracts. The commission for the group was given the sculptor in 1883, and it was at first his intention to include in the composition figures of Columbus, Cortes, Ximenes and the ascetic Fray Juan Perez de Marchena.

The historic connection between Victoria and Isabella is of the slightest, and between Isabella and Stephen the Great there is none at all, but the use of the regal circlet as a riding-cap must here be made the bond of union. It is a far cry to Jassy, as was found when it was discovered that one of Frémiet's best pieces of equestrian sculpture now adorns the space in front of what once was the royal palace in that remote city—the only equestrian group, be it remembered, for which Frémiet ever received a direct commission—and that the sculptor himself had preserved no record of his work, which was erected in 1883 by the order of King Charles of Roumania. Fortunately, the Countess von Krockow, by whose interest in this inquiry we have been more than once assisted, was able to interest the diplomatic corps of two countries, and through this unusual agency, after the passage of many months, a photograph was at length procured.

Through the same kindly aid has been procured the illustration of another crown-wearing horseman—Paul IV, Prince Esterhazy.

This statue, a marble one, stands in the court-yard of the Castle of Forchtenstein in the Hungarian County of Oedenburg, a place more than ordinarily inaccessible to the strolling photographer, and so it



Charlemagne, St. Peter's, Rome. Cornacchini, Sculptor. From Raguenet's "Materiaux et Documents d'Architecture."

seemed hopeless to expect to procure the desired illustration. Here again the Countess von Krockow came to the rescue by cajoling a young artist, F. Storno, junior, into making a bicycle trip to the castle and there making the desired sketch. As seen, the group, by an unknown sculptor, which dates from 1687, is in its way quite as interesting as the career of this flower of the Hungarian nobility who, the head of a noble line which counts Attila as its founder, was made a Prince of the Empire for his service while Palatine of Hungary in bringing Hungary to yoke her fortunes to those of the House of Hapsburg. All through his life he was actively engaged in warring with the Turks and took an active part in freeing Vienna when, in 1683, it was besieged and nearly captured by them. In addition to his claims to distinction as a soldier and ruler, Stephen was a liberal patron of the sciences and arts of the period, being particularly interested in music.

Besides being escorted by Roland and Oliver, the figure of Charlemagne at Paris also wears a crown, and of the several equestrian statues of this noted and somewhat mythical man only one—that in marble by Cornacchini in the portico of St. Peter's at Rome—is represented uncrowned: the others wear the diadem, as



Constantine, St. Peter's, Rome. Bernini, Sculptor.



Charlemagne: a Model. Le Veel, Sculptor. From Raguenet's "Materiaux et Documents d'Architecture."

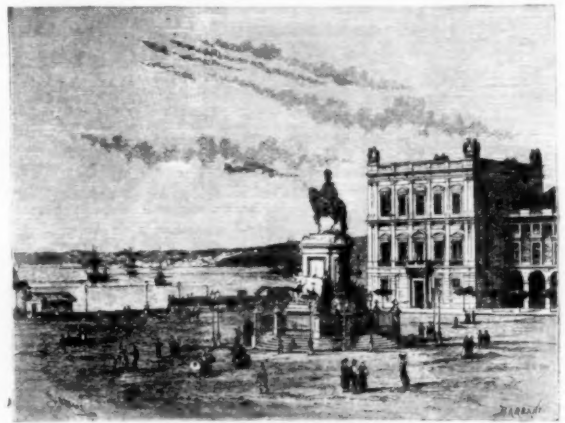
also does Bernini's equestrian statue of the Emperor Constantine which occupies a position in the same portico. Of the several statues of Charlemagne, the best known is Jehotte's group at Liège

in Belgium, a group interesting rather by reason of the pedestal upon which it stands than because of the sculptor's conception or success in modelling. The model made by Le Veel also wears a crown, as does the model by Clésinger which is now stored with



Dom Jose I, Lisbon, Portugal. Machado de Castro, Sculptor.

a half-dozen other unexecuted equestrian models of his in the Garde Meuble in Paris, that interesting repository of the discarded but historic relics of former rulers of France. An imperial crown covers the head of still another of these models of Clésinger's, that



Dom Jose I. From L'Illustrazione Italiana.

of Francis Joseph, the present Emperor of Austria, which was never carried into execution, we believe, because of the Emperor's own request, for this popular ruler has never yet allowed any statue of himself to be erected in his own dominions. This was



Rudolph von Erlach, Berne, Switzerland. Volmar, Sculptor.

rather unfortunate for the sculptor, as the group was one of the best that he had modelled.

The long reign of Francis Joseph has been signalized, amongst

other things, by the architectural rehabilitation of Vienna, and the remarkable changes that have been made there would hardly be complete without a statue of the most popular sovereign of his time. It is not likely that Clésinger's statue will be called out from its seclusion in Paris for this purpose, but it may be hoped that the memorial, when it is erected, may take a more happy form than has the equestrian statue of Dom José I, which, the result of five years' labor, the grateful citizens of Lisbon caused to be erected in 1775 because of the energetic steps taken to rebuild the city after the great earthquake of 1755 — to be sure, the energy was that of the prime minister, the Marquis de Pombal, a man personally so unpopular that his bronze medallion was torn off the pedestal two years after the statue was unveiled: it was, however, restored to its original place in 1833, and the monument now stands as it was designed by Joaquim Machado de Castro, with its animated high-relief sculpture on each face of the pedestal; in one group a rearing horse being the chief figure, while on the opposite is an elephant — no bigger than the horse, however — in commemoration, probably, of Portugal's former large interest in the East. In the execution of these minor parts the sculptors Garcia, Leita, Elveni and Gomes had a share. The statue is one of the largest, weighing 80,640 pounds, and being 21 feet high; while the pedestal proper, which is 12 feet wide and 18 feet long, measures a similar amount, to which must be added the surbase upon which it stands. It is thus one of the largest, most elaborate and presumably most costly of equestrian memorials, and all due to the gratitude of the citizens who were to have the pleasure of gazing upon it.

To grateful feelings aroused by very much the same causes is due the equestrian statue in the Odeonplatz by Widmann, which "the grateful city of Munich" in 1862 set up to commemorate the long reign of Ludwig I, during which were erected the many buildings which now make that city the worthy goal of many an architectural pilgrimage.

One of the ancestors of this enlightened ruler, Ludwig IV, Emperor of Germany, and commonly known as "Louis the Bavarian," was indirectly responsible for the expression of another city's gratitude taking the form of an equestrian monument. In 1339 the partisans of Louis the Bavarian besieged the city of Berne, in Switzerland, and Rudolph von Erlach, a man of high birth, was invested with the duty of conducting the defence. Not only was he successful in this, but at the battle of Laupen he definitively routed the enemy, and shortly afterwards surrendered the powers with which he had been invested, and, like a true patriot, retired to private life. The memory of this Alpine Cincinnatus was kept green, and, after more than five hundred years, the artist Volmar was called on to create his eque-

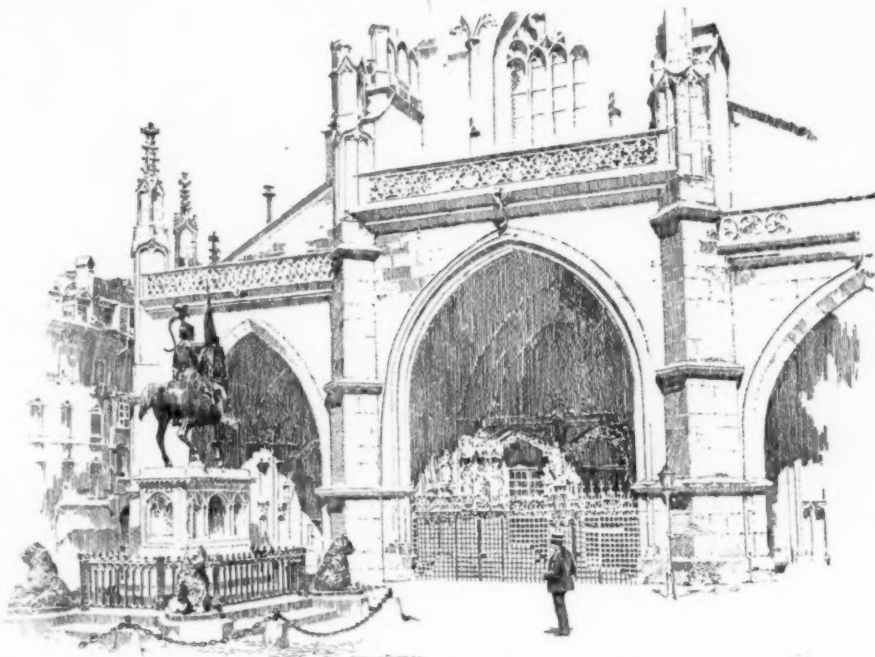
trian statue. This tardy but deserved memorial was erected in 1848, and stands in front of the Cathedral, where it, with its body-guard of bears, makes a marked impression on the traveller.

Point of connection there seems to be none between any of the worthies mentioned in this paper and the Duke of Orleans, whose untimely death in 1842 removed one of the barriers which stood between his father, Louis Philippe, and the revolution of 1848. His personal popularity and the manner in which he conducted the war in Algiers against Abd-el-Kader earned for him an equestrian statue in duplicate, the original once occupying a place in the court-yard of the Louvre while the duplicate still stands in the Place du Gouvernement at Algiers. Popular as the Duke was, it was thought unwise to leave the original of the group where it might so easily receive damage at the hands of the Parisian revolutionists, and it was accordingly moved to Versailles where it found a resting-place in some nook of the Petite Orangerie.

It is more than probable that the statue at Algiers looks down daily upon direct descendants of those Moors who in the thirteenth century were driven out of Aragon by Don Jaime I, the famous Conquistador. If the Cid lacks an equestrian statue Don Jaime does not, for about 1887, there was set up in Valencia a very striking statue by the sculptor Vallmitjana who succeeded so well in his task that he was instructed to prepare a variant upon the same conception for the city of Barcelona.

The Spain of these days does not lack capable sculptors and the statues of Don Jaime and Isabella prove that when the theme is an inspiring one — and Spanish history could easily supply abundance of such themes — they can produce very satisfactory work. But when such men are asked to cope with the difficult problem of producing a satisfying statue of men of their own time, they seem to meet with no better success than rewards the efforts of sculptors in other countries, as witness the statue of General Prim by Puigener at Barcelona, a statue which somewhat suggests Reg-

naud's well-known picture in the Louvre, and those of General Concha and General Espartero at Madrid, which, take it all in all, is about as uninteresting a piece of sculpture as can be found anywhere.



Rudolph von Erlach, Berne, Switzerland. Volmar, Sculptor.



The Duke of Orleans, Algiers, Algeria. Marochetti, Sculptor.

QUEEN VICTORIA. — Victoria Alexandrina, daughter of the Duke of Kent, was born at Kensington Palace, May 24, 1819. She succeeded to the throne of Great Britain in June, 1837. She married her cousin, Prince Albert of Saxe-Coburg-Gotha, in February, 1840. In 1877 she was proclaimed Empress of India. Celebrated the fiftieth anniversary of her accession in June, 1887.

PRINCE ALBERT. — Albert Francis Augustus Charles Emmanuel, Prince of Saxe-Coburg-Gotha and Consort of Queen Victoria, was born near Coburg, August 26, 1819. He visited England in 1838, and married Victoria in 1840. He was a field-marshal in the British Army, Chairman of the Council of the Great Exhibition of 1851, and President of the British Association for the Advancement of Science. He died December 14, 1861.

QUEEN ISABELLA.—Isabella, daughter of John II, King of Castile, was born in 1451. In 1469 she married Ferdinand of Aragon, and in 1474 she succeeded her brother, Henry IV, as Queen of Castile and Leon. She died in 1504.

MENDOZA.—Pedro Gonzalez de Mendoza, a Spanish prelate and statesman, was born in 1428. He enjoyed the favor of John II and Henry IV, and was made successively Bishop of Sigüenza, Chancellor of Castile and Leon, and a cardinal in 1473. Under Ferdinand and Isabella, he became archbishop of Toledo. He also distinguished himself in the Moorish wars, where he held a command. He founded the College of Santa Cruz at Valladolid and a hospital at Toledo. He died in 1495.

GONSALVO DE CORDOVA.—Gonsalvo de Cordova was born at Montilla, near Cordova, in 1443 (?). He won renown in the long Granada war, which ended in 1492. In 1495, Queen Isabella gave him command of the army sent to aid the King of Naples against Charles VIII. He expelled the French and returned to Spain in 1498. In 1502 he again drove the French from Naples. Recalled to Spain in 1506, he was treated with coldness by Ferdinand, who was either jealous of his glory or suspicious of his loyalty. He died in 1515.

OMS.—Manuel Oms is a native of Barcelona and a pupil of his father, the decorative sculptor, Vicente Oms. In addition to his equestrian figure of Queen Isabella at Madrid, he has produced the four marine monsters on the cascade in the Park at Barcelona, the "Murder of General Concha," "The First Step" and other sculptures.

CHARLEMAGNE.—Charlemagne, or Charles I, King of France and Emperor of the West, was born at the Castle of Salzbürg, in Bavaria, in 742, and was a son of Pepin le Bref, King of the Franks. At Pepin's death in 768, Charlemagne became King of Austrasia, Neustria, etc., while his brother Carloman ruled over the rest of his father's domain; but the death of the latter in 771 made Charlemagne monarch of all his kingdom, including France and a large part of Germany. In 772 he began a war against the Saxons, whom he finally conquered after many years of conflict. He was created King of Lombardy in 774. He suffered a reverse at Roncesvalles in 778, when returning from an invasion of Spain. In 800 he was crowned at Rome as Emperor of the West. He died at Aix-la-Chapelle in January, 814, the most powerful monarch of his time.

CORNACCHINI.—Agostino Cornacchini was born near Pescia, in Tuscany, and flourished in the first half of the eighteenth century. He worked much in Rome, where, in St. Peter's, is his equestrian statue of Charlemagne and his statue of Elias, and, in the Church of St. John Lateran, his figure of "Prudence."

STEPHEN THE GREAT.—Stephen, voivode of Moldavia, called "The Great," was born in 1433. In 1458 he deposed the voivode Peter, and for forty-six years, until the end of his life and reign, his courage and resources never failed him. Under him, Moldavia became a power formidable alike to Turk, Pole and Hungarian. He died in 1504.

ESTERHAZY.—Paul Esterhazy de Galantha was born at Eisenstadt in 1635. He served in the Austrian army with such success that he was made a field marshal before he was thirty. In 1681 he was made Governor-general or Palatine of Hungary, and in 1684 he took Buda from the Turks. He was created a Prince of the Holy Roman Empire in 1687, and died in 1713.

RUDOLPH VON ERLACH.—Rudolph von Erlach, a Swiss patriot, the representative of an ancient and honorable family, distinguished for his gallant defence of Berne against the partisans of the Emperor Louis of Bavaria. When his native district was menaced in 1339 by the chivalry of Burgundy and Swabia, he was elected to the supreme military command, and defeated the enemy at Laupen. Resuming the occupation of an agriculturist after his brief but glorious career as a soldier, he took up his abode at Reichenbach, where he was assassinated by his son-in-law in 1360.

VOLMAR.—Joseph Volmar, who was a son of the artist, Xavier Volmar, was born in 1798. He became a successful landscape and animal painter, being especially happy in the delineation of horses. Volmar was also a sculptor, and, besides the equestrian monument to Erlach, made the monument to Pere Girard in Freiburg. He died at Berne in 1865.

DUKE OF ORLEANS.—Ferdinand Philippe Louis Charles Henri, Duke of Orleans, was born at Palermo in 1810, and was the eldest son of Louis Philippe. Educated at the College Henri IV, in 1832 he received a medal from the city of

assassins, and he was severely wounded. Discovering that the Jesuits were concerned in the plot, he punished those found guilty, and issued an edict declaring all the Jesuits in Portugal to be traitors. In 1762 he joined England in a war against France and Spain. He encouraged education and religious toleration, and restricted the power of the Inquisition. He died in 1777.

MACHADO DE CASTRO.—Joaquim Machado de Castro was born at Coimbra in 1731, and was a pupil of the Roman sculptor Giusti. His works include the



Gen. Espartero, Madrid, Spain. Gibert, Sculptor.

the equestrian statue of José I at Lisbon, the figure of Neptune in the Place de Lorette in that city; the groups of the "Presepio" in the Cathedral of Lisbon; various sculptures in the Church of the "Estrella" in Lisbon, and statues of Donna Maria I and of Venus. He died in 1822.

JAMES I OF ARAGON.—Don Jaime I was born in 1208, and became King in 1213, when only five years old. During his long reign, he quelled an insurrection formed against him by his nobles and checked the encroachments of papal power. His successes over the Moors, whom he drove from Valencia about 1238, and from whom he conquered Murcia in 1266, were so great that they gained him the title of "Conqueror." He died in 1276.

VALLMITJANA.—Agapito Vallmitjana is a native of Barcelona, where he studied at the School of Fine Arts. His works include the equestrian statue of Don Jaime at Valencia; Queen Isabella II; St. Sebastian; "Adam's First Sight of Eve"; "St. Francis de Paul"; "Charity"; "Christ"; and statues of Alfonso el Sabio and Louis Vives for the University of Barcelona.

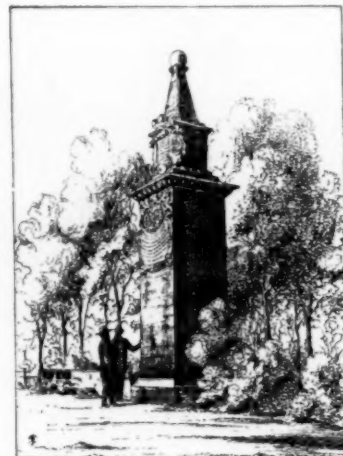
ESPARTERO.—Don Baldomero Espartero, Duke of Vittoria, a Spanish statesman and general, was born at Granatula, in La Mancha, in 1792. The son of a mechanic, he entered the army when very young, and served in South America against Bolívar. Returning to Spain in 1822 with the rank of a brigadier, he took up arms for the young Queen Isabella in the civil war of 1833, and was appointed lieutenant-general and then commander-in-chief of the Army of the North. He gained many victories, was created a Duke in 1839, and in 1841 was made Regent during the minority of Isabella. In 1843 General Narvaez entered Madrid at the head of an insurgent army, and Espartero was compelled to retire to England. In a few years, however, he returned to Spain, and another revolution, in 1854, drove Narvaez from power. Espartero and O'Donnell formed a ministry, but disagreed, and Espartero was dismissed in 1856. He took no active part in politics afterwards, and died in 1879.

GIBERT.—Pablo Gibert y Roig is a sculptor of Barcelona. Besides the equestrian statue of Espartero at Madrid, he has executed the following sculptures: "Eloquence," "The Vision of Fray Martin" and "Wounded Eagles," and various busts and bas-reliefs, with a crucifix for the Oratory of Barcelona.

(To be continued.)

THE CHICAGO CONSTRUCTION, OR TALL BUILDINGS ON A COMPRESSIBLE SOIL.¹

[It was intended to publish the following paper at the same time with others read at the last convention of the American Institute of Architects, and it was put in type at that time, but by an oversight the galley containing it was displaced and the matter was temporarily lost sight of. The paper is, however, interesting apart from the occasion which caused its preparation.—Eds.]



A Saxon Road-making Monument. From *Deutsche Bauzeitung*.

DEFINITION.—What is now generally known as the Chicago Construction consists of a fireproofed steel skeleton so arranged that all the load including the walls and partitions are carried story by story on the columns. The foundations as far as practicable are on isolated piers.

History.—Even before the Chicago fire what is known as "foundations by isolated piers" had been accepted by the Chicago architects as the best adapted to their peculiar soil.

Underlying Chicago is a bed of soft compressible clay of great thickness, some sixty to ninety feet.

This clay has one redeeming feature, it satisfies Professor Tyndal's definition of a solid, "under a given load it will compress a certain quantity and stop, and the

¹ Paper read by W. L. B. Jenney, of Chicago, before the Twenty-fifth Annual Convention of the American Institute of Architects, at Boston, Mass., October 29, 1891.



Don Jaime I, Valencia, Spain. Vallmitjana, Sculptor. From *La Ilustracion Espanola y Americana*.

Paris for his services in the hospitals during the cholera. He served with the rank of general in Algeria in several campaigns between 1835 and 1840, distinguishing himself especially at the passage of the Col de Mouzaïa. He was killed by a fall from his carriage in July, 1842, at Neuilly.

JOSE I.—Dom José Manoel, King of Portugal, was born in 1714, and succeeded his father, John V, in 1750. In 1758 an attempt was made upon his life by

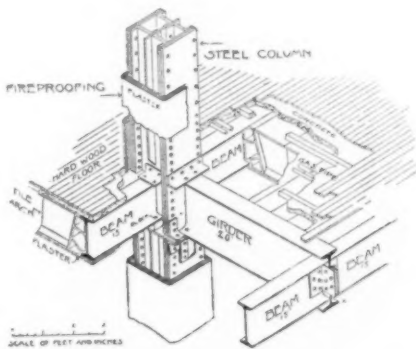
compression will not be renewed without a change in the conditions." Experience teaches that a load of 3,000 pounds per square foot will cause a compression of about two inches, and that it is desirable not to materially increase this load or the compressions may not be sufficiently uniform. With 3,000 pounds per square foot, with proper care in the distribution of the loads, a practically uniform settlement can be obtained with reasonable certainty.

As early as 1873 Mr. Fred. Baumann, one of Chicago's oldest architects, had published a little pamphlet on isolated piers and their adaptability to Chicago foundations.

The advantages of a system of isolated piers on a compressible soil is its elasticity, it being impracticable during the construction of a building to keep a uniform load on the foundations, hence the necessity of allowing the parts to settle at different times, counting upon a general uniformity of settlement in the end. A continuous foundation is liable to be broken up and very unequally, therefore even when the pier foundations touch each other they are kept separate by plank or sheet piling, on the line of junction.

In 1883 the writer was requested by orders received from the officers of the Home Insurance Company, of New York, to prepare designs for a ten-story fireproof office-building to be erected in Chicago, dimensions 100' by 135', on the corner of La Salle and Adams Streets, the principal story to be arranged for two great banks or kindred use, while all the stories above should be divided into small offices, all of which must be well lighted. These requirements when coupled with the condition of a very compressible soil, carrying only a light load per square foot, necessitated a different method of construction from those in general use. The piers must be narrow in order that proper space might be left for windows, the walls must not be as heavy as the old construction would demand, or there would not be sufficient space on the ground for the foundations. A column in each pier was the natural solution of the problem. Lintels between columns, forming heads of windows, carried the street-walls story by story; the brickwork was reduced to the thickness necessary to hold the window-frames or to fireproof the metal columns and lintels. This method of construction has been improved upon; each architect using it has added something, particularly to the details. The manufacturers of steel, terra-cotta and fireproofing have improved their material and adapted it more especially to this style of construction, so that I have selected for my illustration one of the later buildings, a building now under construction known as "the Fair," occupying a half-block on Dearborn, Adams and State Streets, 400' by 160', and seventeen stories, 241' high above the sidewalk.

The Columns.—Rolled steel columns are in general use for these tall buildings, all connections being made with hot steel rivets, hence



more rigidity as against wind-pressure and vibrations of moving loads, like running machinery, than can be obtained with the cast columns and screw-bolt connections.

Where so much depends upon the columns, every precaution against accidents should be taken. The rolled-steel column composed of several parts riveted together, each part inspected separately both for quality of metal and for surface, and then the finished column inspected for workmanship, offers a guaranty against any serious failure far beyond what can be expected from a cast column, as usually manufactured.

In the Fair the Z-bar column is used (see illustration). Notice the connections. The plate and the brackets are riveted to the column at the mill while the columns are riveted together and the beams and girders are riveted to the lower column through the plate and to the top column by an angle.

The wind-pressure must be looked after. The floors are by the fireproof arches made sufficiently rigid, but the columns may require bracing, either by knees, as in naval architecture, or by X-roads, as in bridge construction.

The construction of tall buildings on a compressible soil much resembles, in the generalities, the construction of a railway bridge of the first order. The design must be such that the material is used in the most economical manner; every piece must be calculated. There must be sufficient material and no more, for it is essential, not only from economy but also to reduce the weights on the foundations,

that the construction should be as light as possible consistent with stability. To this end the live loads are provided for as nearly as practicable as they will actually occur.

The column loads in the Fair Building are figured for the full dead loads plus such a percentage of the live loads as will probably obtain.

Column.	Live load which the beams in the story above the respective column are calculated to carry.	Percentage of the sum of the live loads of all the stories above the respective column. This percentage of live loads, together with all the dead load, is the total load the respective column is calculated to carry.
Attic column.	40 pounds per square foot.	100 per cent.
16 story column.	75 " " " " " "	90 " " "
15 " " "	75 " " " " " "	87 1/2 " " "
14 " " "	75 " " " " " "	77 1/2 " " "
13 " " "	75 " " " " " "	75 " " "
12 " " "	75 " " " " " "	72 1/2 " " "
11 " " "	75 " " " " " "	70 " " "
10 " " "	75 " " " " " "	67 1/2 " " "
9 " " "	75 " " " " " "	65 " " "
8 " " "	75 " " " " " "	62 1/2 " " "
7 " " "	75 " " " " " "	60 " " "
6 " " "	75 " " " " " "	57 1/2 " " "
5 " " "	130 " " " " " "	55 " " "
4 " " "	200 " " " " " "	52 1/2 " " "
3 " " "	130 " " " " " "	50 " " "
2 " " "	130 " " " " " "	47 1/2 " " "
1 " " "	130 " " " " " "	45 " " "
Basement column.	130 " " " " " "	42 1/2 " " "

Floor-beams are calculated to carry all the dead load, plus the full amount of the live load designated as the maximum load for said story.

The girders are calculated to carry all the dead load plus ninety per cent of the live load designated for said story.

These reductions are made to reduce the metal to the probabilities.

Although a floor-beam may be loaded with the full designated amount per square foot of floor carried by said beam, such is not true of the girder, as certain spaces or passages must be left for the service.

It is easy to see that the probable percentage of the total designated live loads on any given column diminishes as the number of stories above said column increases.

Footings must be calculated to carry all the load of the basement column plus the basement-floor load that will rest upon them—often the important item of boilers, engines or dynamos.

The load on the clay is of great importance or the settlement will be unequal. It must be all the dead load plus so much of the live load as will actually come upon it.

The live load on the clay depends upon the use to which the building is to be applied. In a hotel or office-building the live load is so small in proportion to the dead load that it may be neglected in calculating the area of the supporting clay, particularly as this weight is not applied until the building has settled, that is, the compression of the clay has taken place.

Experience has shown that after the clay has been compressed by a weight of 3,000 pounds per square foot and allowed a few months of repose, no addition to that compression will obtain without a material addition to the load, so that it is good practice to neglect the live load on the clay in hotels, office-buildings and light retail-stores; not so, however, in warehouses or other buildings carrying heavy floor loads and particularly where there is running machinery; these moving loads should be counted as double the actual weight, for the continuous jar has the effect of pounding and increases the compression of the clay.

The last addition to the tall buildings was the steel chimney.

At the Fair there was no place for the foundations of a brick chimney-stack such as was necessary for the battery of boilers sufficient to heat the buildings and run the elevators, electric-light plant, house-pumps, etc.

The external steel chimney had long been in use for manufactories—why not an internal steel chimney for an office-building? This was found practical and economical.

In these chimneys all the load is carried on the steel shell. Angles are riveted on the interior each twenty feet or so, to carry the fire-brick lining and to avoid trouble from unequal expansion.

The exterior is covered by plastered fireproofing resting on the floors. This covering hides the chimney and checks the radiation.

Inspection.—The material used in these tall buildings is calculated so closely that the same rigid inspection is necessary as for a railway bridge. The specifications must be very full and explicit.

In Conclusion.—Tall steel buildings, constructed as described, are very substantial, and even earthquake-proof. The exterior can be almost entirely of glass, the windows separated only by the fire-proof metal. The party-walls may be, and usually are, carried story by story on the lintels supporting the floors; the lintels carried on steel columns built in the thickness of the wall or projecting as fireproofed pilasters. This reduces the party-wall to a uniform thickness in all stories, say twelve or sixteen inches. Hollow building-tile are often used for these walls, reducing the weight by nearly one-half.

THE BOND STREET BUTTERFLY.



"*DE l'audace; et toujours de l'audace!*" might be Mr. Whistler's motto, if he has not already chosen one for his coat-of-arms. For twenty or more years we have been looking at "nocturnes" and "symphonies" and "studies in blue and brown," or "pink and gray" and here they are again upon some Bond Street walls. There is little change in them; the "nocturnes" are still in blue and gold

(gaslights); or blue and silver (moonlights). The Thames bridges and reaches are as murky as of old; and London fog as thick, as yellow and as grimy. So too, the catalogue is an echo of its fore-runners; put together through the agencies of paste and scissors, and covered with the familiar brown paper. Its title is "Nocturnes, Marines and Chevalet pieces"; its contents, cuttings from newspaper criticisms of the pictures when first they appeared years ago—for most of them have been exhibited before. On the fly-leaf is written "The voice of a people"; at the end "Moral. Modern British (!) art will now be represented in the National Gallery of the Luxembourg by one of the finest paintings due to the brush of an English artist (!) namely, Mr. Whistler's portrait of his mother.—*Illustrated London News.*" The italics are Mr. Whistler's, who is thoroughly acquainted with his public. For years he has been steadily walking along a somewhat monotonous path, repeating himself as does the low comedian in a popular farce, reiterating his ideas, and "goods and chat-tels"; and at last, those who came to laugh have stayed to admire, and most of the critics are made to eat their own words of a quarter of a century ago. Who would venture to give vent to the attorney-general's words nowadays? And yet fourteen years ago the great man's speech was endorsed by the mass of British critics and amateurs. "I do not know when so much amusement has been afforded to the British public, as by Mr. Whistler's pictures."

So the world wags. Great artists live and die, and posterity reaps the harvest. Delacroix, Constable, David Cox, Millet, Prud'hon, Müller and a host of others, all passed away before they had made either great reputations or great fortunes. The little keen-eyed butterfly is wiser in his generation. He, like the importunate widow, has persisted in his ways for good or evil; and now the public is ready to acknowledge his talent and admire his work; and the public is right, for there is much to admire. If Mr. Whistler could but be induced to put aside eccentricities, affectations and clap-trap, no one could bring any accusation against him; but these, his peculiarities, make the enemy to blaspheme. They have served their day. No one but the over-prejudiced can do aught but admire the portraits, the delightful little girls in white, and the snowy Chelseas: it is true they are all in a minor key, these "symphonies" and "nocturnes," but it is not given to every one to possess the power of painting sunshine. No man should be judged by what he cannot do, but by what he does; and as studies of character, as "arrangements in brown or black" (to use the painter's own term) what can be more truthful or more refined than the portraits? They are full of action and life; they seem to be stepping from their frames. How many painters can manage half-a-dozen different blacks or browns?—velvet, silk, plush, felt, ribbon and feathers. And the whites of the dresses of the two girls upon a couch; or of little Miss Alexander's with the sea-green trimmings and bows. Are they not as refined as Velasquez? where they are so far below the great Spaniard, is in the flesh painting. Velasquez never allowed his model's clothes to choke their faces. But there is a something in Whistler which is a sort of echo of Velasquez as regards the grays and pinks, particularly in the portraits of Miss Alexander and Lady Meux. Of course the Spanish painter has been the master of Whistler as of Carolus-Duran and Sargent; but the first painter has missed the freshness and vitality of the flesh tints, the latter ones have caught them.

Mr. Whistler's nocturnes are all in one key; one knows them well by heart. A high horizon, a wash of bluish gray, six or seven dabs of yellow, and a perpendicular sweep of the brush for the reflections—that is all. Are they successes as regards night effects? Yes, probably as successful as Turner's brown moonlights, or the Dutchmen's black ones. Only one man has seemed to us superior to Mr. Whistler in these subjects, and he would probably be the first to admit it—Cazin; but the two painters arrive at their results by totally different methods. In "The Blue Wave—Biarritz," there is less originality, as it is perhaps, too suggestive of Courbet's sea-

piece in the Luxembourg; but it is very fine in color, and the artist has not been blind to the curling over of waves far out upon the horizon—a detail generally overlooked. The water of the huge wave is of a transparent bluish-green, and as it rolls over the rocks, and disperses into fine spray, one seems to feel it sprinkling one's face. I can recall but three or four waves as fine as this—Hitchcock's, Henry Moore's and Courbet's. In the foggy Thames pictures, the painter is highly successful; he has caught that unpleasant pea-soup color which we poor Londoners know only too well. The aerial perspective is excellent; but the barges and coal-lighters want strength. When, however, Mr. Whistler emerges from fogs and moonshine into the light of day, his work is opaque, and gloomy and sad; of brightness he knows naught. But perfection cannot be expected of a butterfly, any more than of a man. The little insect flies to and fro, from the Thames to Valparaiso, from Biarritz to Chelsea, and flying, uses his eyes; but possibly, to a butterfly's vision, the glorious coloring of his own coat, prevents him seeing anything but gray in Nature's other works. Or it may be, that soaring to the skies, and basking in the sunlight, he is so dazzled by its radiance, that all colors here below are veiled in mist and fog.

PENGUIN.



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

PARK AVENUE M. E. CHURCH, CORNER PARK AVENUE AND 86TH STREET, NEW YORK, N. Y. MESSRS. J. C. CADY & CO., ARCHITECTS, NEW YORK, N. Y.

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

TAYLOR MEMORIAL CHURCH, MILFORD, CONN. MR. J. W. NORTHROP, ARCHITECT.

EQUESTRIAN STATUE OF QUEEN ISABELLA, MADRID, SPAIN. MANUEL OMS, SCULPTOR.

For description see article on "Equestrian Monuments" elsewhere in this issue.

HOUSE OF GENERAL A. C. MCCLURG, LAKE SHORE DRIVE, CHICAGO, ILL. MR. F. M. WHITEHOUSE, ARCHITECT, CHICAGO, ILL.

HOUSE OF JULIUS LOWENBERG, ESQ., PORTLAND, OREGON. MR. I. HODGSON, ARCHITECT.

STAIRCASE IN HOUSE OF W. J. TINGUE, ESQ., PORT CHESTER, N. Y. MR. E. G. W. DIETRICH, ARCHITECT, NEW YORK, N. Y.

[Additional Illustrations in the International Edition.]

STREET FRONTS, COLOGNE, GERMANY.

[Gelatin Print.]

FOUNTAIN AT CHATEAUDUN, FRANCE.

[Etching.]

This fountain which stands in the chief place in the city has an obvious resemblance to the famous Fontaine des Innocents at Paris. Unfortunately water is generally lacking in the town and travellers rarely have the chance of fully enjoying this and the other fountains scattered through the town.

A HUNTING-LODGE AT CESTAS (GIRONDE), FRANCE.

[Etching.]

In France "la chasse" assumes each year more and more importance and the simple huts or cottages used for hunting-lodges are giving way to buildings of a more architectural character. Here is one which its owner has decorated with a statue of St. Hubert, the patron of the chase. In the upper story of the tower is a large sleeping-room where host and guests can find lodging. Below this is the equally large kitchen with generous open fireplace where the huntsmen pass their evenings. Backing up against this is the bake-house with its large brick oven. The rest of the plan is assigned to a modest horse-box and a large room used for general purposes and for an extra sleeping-room on occasions.

THE DUCAL PALACE AND PILLARS OF ST. MARK'S, VENICE.

When in August, 1739, that most agreeable letter-writer, Charles de Brogues, first president of the Parliament of Dijon, beheld the scene which Prout has represented, with some adjoining parts, he declared that it was far inferior to the Place Vendôme in Paris, both

in its extent and the *coup d'œil* of its buildings. But he admitted that the assemblage of Turks, Greeks, Dalmatians, Levantines, charlatans, boatmen, monks, made the place the most curious in the world. The Scottish Forsyth was also disappointed not only with the buildings, but with the city itself, for he said, "Venice is the last residence that I should choose in Italy." The Ducal Palace, which of late is accepted as being more wondrous than the palace of Kubla Khan, according to Forsyth "is built in a style which may be Arabesque, if you will, but it reverses the principles of all other architecture: for here the solid rests on the open, a wall of enormous mass rests on a slender fretwork of shafts, arches and intersected circles; the very corners are cut to admit a thin spiral column, a barbarism which I saw imitated in several old palaces." That way of judging the value of the architecture of Venice was not peculiar to De Brosses and Forsyth; it has been repeated by many other travellers. It is wise to glance occasionally at such criticism, for it should inspire gratitude that better principles now prevail, for nowadays even humble tourists would sincerely unite with Théophile Gautier in believing that the combination of buildings, which is seen in Prout's drawing, forms "one of the most marvellous spectacles that the human eye can contemplate." To few it may be allowed to perceive all the beauties which Mr. Ruskin has described, but at least common folks can appreciate a scene which has not its fellow in any city of Europe, and which is no less impressive when the point of view is reversed and the Piazzetta is seen from the water.

ADDITIONS TO GLASGOW UNIVERSITY, GARDEN FRONT. J. BURNET, SON & CAMPBELL, ARCHITECTS.

BOARD-ROOM, NO. 5 LOMBARD STREET. W. DUNN AND R. WATSON, ARCHITECTS.

HOUSE, BROMLEY, KENT. MR. WILLIAM A. BURR, M. S. A., ARCHITECT.

This house which is situated in the London Road, Bromley, Kent, has just been completed for Mr. E. O. Larke. The lower portion of the building is executed in red brick, with a stone cornice, with cement in imitation half-timber above, with panels rough-cast in between, and the roofs are covered with Broseley tiles.

GARDENER'S COTTAGE, ST. ANN'S LANE, BURLEY, NEAR LEEDS. MR. WILLIAM H. THORP, F. R. I. B. A., ARCHITECT.

THIS two-storied cottage was erected for Mr. T. R. Harding, J. P., of St. Ann's Tower, Headingley, and is situated on his estate adjoining St. Ann's Lane. It is built of local stone, with freestone dressings, has timber-framed gable ends, and is slated with Bangor slates.



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

ONE-LIGHT RISING WINDOWS.

[A CORRESPONDENT asked us to procure information as to how it was possible to open the sashes shown in the house No. 317 Garfield Place, Brooklyn, a gelatine view of which was published in our issue for March 19. Our inquiry has brought out the subjoined explanation. — Eds.]

NEW YORK, N. Y., March 31, 1892.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — In answer to yours of 25th inst., would say that the windows of house 317 Garfield Place, work satisfactorily. The lower sash slides up past the transom sash or upper sash and back of transom bar. The transom sash or upper sash slides down past the lower sash and also through the transom bar.

Very truly, CHARLES P. H. GILBERT.

BOOKS.

RICHMOND, VA., April 4, 1892.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Can you give me the names of two or three of the best books you know of on Renaissance Architecture?

Yours truly, A. PADDOCK.

[LETAROUILLY'S "Edifices de Rome moderne"; Berty's "La Renaissance monumentale en France"; Percier and Fontaine's "Palais, Maisons etc. à Rome"; Sauvageot's "Palais, Châteaux, Hôtels et Maisons de la France." The latest and perhaps for Americans the most useful publication is Gotch's "Architecture of the Renaissance in England," published by Ticknor & Co. — Eds. AMERICAN ARCHITECT.]



THE HERÆUM AT ARGOS. — The Chairman of the Managing Committee of the American School of Classical studies at Athens has received from the Director, Dr. Charles Waldstein, under date of Athens, March 6, the following informal report with regard to the important excavations of the School at the Heræum, near Argos. "At the Heræum we have been successful beyond all hopes. We are clearing the whole site of the second temple, cutting far into the hill below. The whole foundation will be clearly visible now (there having been nothing to see before). We have done enough digging on the surrounding sites to discover the interesting foundations of the first temple (even with the remains of the charred wood of the superstructure, burnt in 429 B. C.), and have found a stoa and other interesting buildings on the lowest terrace. The harvest of ancient pottery of the earliest periods, terra-cottas and bronzes, is perhaps the richest yet made in these regions, including Mycenæ, and I do not doubt will have the most important bearings upon the early history of art and ritual — a subject much under discussion at the present moment. We have also discovered many beautiful pieces of the architectural decoration of the second temple, and I trust we shall be able to make a restoration of it. Last, but not least, we have found most interesting pieces of sculpture, among them three well-preserved heads — one of them, I believe, the most perfect specimen of the art of the fifth century B. C., to be found in any extant head. The numerous other marble fragments will become the more valuable the farther the excavation goes. I trust that we are just now at a point where further finds may be made. At the end of this or next week, the work at the second temple will come to a point where we can well stop for this year; we shall continue our work next year at the other portions of this excellent site. The Greek authorities, who have visited us while excavating, approve highly of our method of working. We are digging on a large scale, which the liberal contribution of the Archaeological Institute of America enables us to do, and the form of excavation has proved advantageous to the scientific aspects of the work. We have employed on most days (fortunately no rain and no holidays) from 150 to 180 workmen, and 20 to 30 carts with horses. Four students have been with me. I shall have a cast of the beautiful head taken at once, and shall send the mould to you, that casts may be made in America and forwarded from there. I have also made arrangements for good photographs, and shall have a set of selected specimens issued in phototype, as a preliminary publication, and shall add a short explanatory text. At Sparta this year I mean only to make excavations on one site in the city which belongs to the Government, and perhaps some trial excavations on the most promising private sites, leaving the chief work for next year."

A LEGEND OF THE THAMES. — The erection of a bridge over the Thames at London, must early have been a work of necessity, to take the place of the ferry. The Romans first established a trajectus on this river, to connect their station in London with the military road to Dover, and after the Romans it was continued by the Saxons. There is a rather singular tradition relating to one of the masters of the ferry. One, John Overy, rented the ferry of the city, and what with hard work, great gains, and penurious living, he became very rich. His only daughter was very beautiful and of a pious disposition. She was sought in marriage by a young gallant, who was ambitious of being the ferryman's heir. The old ferryman, in one of his fits of greed, formed the scheme of feigning himself dead, in the hopes that his servants, according to custom, would fast until after the funeral. The servants, however, preferred feasting, broke into the larder, and set to enjoy themselves. The poor dead man could not stand that long, but he rose up in his sheet to rate them well. One of the men thinking this was the devil, seized the butt end of a broken oar, and brained poor John Overy on the spot. Mary's gallant, hearing the news, rode off to town in all haste, but his horse stumbling he was thrown, and his neck broken. Poor Mary, the daughter, having lost both her father and her lover, founded the church which still bears her name, and made over her possessions to the college of priests which became thus established. These priests determined upon erecting a wooden bridge across the river, which was accordingly done in the reign of Ethelred II (903-1016). William of Malmesbury states that in 994, Swerga, the Danish king, ran foul of the bridge when he sailed up the river to attack London, and that the bridge was destroyed in the fight which took place. It seems, however, to have been repaired, for when Canute sailed up the Thames with his fleet in 1016, he found the bridge in his way, and cut a canal through the marsh on the south side, along which he drew his ships and completed the blockade of the city. In 1091 the bridge was again swept away by a flood, a new one was erected in 1097 and burnt down about forty years afterwards. It was, however, patched up and made to stand until the erection of the stone bridge in 1176, as we have already seen. — *Engineering*.

A RAG-PICKERS' COLONY EVICTED. — A story is reported from Paris which could not have come from any other country than France. About a dozen years ago an old fellow, known as Père Maupy, who had contrived to scrape together a few hundred francs, invested them in a patch of ground on the heights of Montmartre, where he built a number of huts for the accommodation of rag-pickers. The "Cité Maupy" became a great settlement, and Père Maupy himself figured in novels and pictures, and occasionally at the police office. He was not very popular with his clients. He fixed his rents, would not abate the figure, and employed vigorous methods to secure his money. His wife was a great help to him in the collection of rents. She was a powerfully built woman, who superintended evictions and took an active part in the proceedings. Maupy died a few days ago, and his

tenantry, who mustered at his funeral, behaved with most unseemly hilarity, whereupon the widow, to avenge this insult to the memory of the departed, evicted them in a body. Then she retired to her solitary cabin, where she committed suicide by means of charcoal, after writing a will in which she directed that no rag-picker should be permitted to attend her burial. — *N. Y. Evening Post*.

BURSTING WATER-PIPES BY FREEZING. — Writing on the bursting of water-pipes by freezing, Doctor Tyndall states that the air does not play a sensible part in the bursting of water-pipes. In his early days he was accustomed to give expression to the paradox that there is no such thing as real uniformity in nature. In regard to pipes considered "almost uniform," the slightest accident, says Tyndall, on the interior surface, a speck of dirt, for example, will start the crystallization at one point rather than at another. That the freezing should occur with absolute uniformity throughout a water-pipe he regards as physically impossible. Specks of dirt will cause some portions of a pipe to be filled by a solid plug, while other portions continue filled with water. Spaces of liquid he considers are sure to occur now and then between the ice plugs, and if the latter be of any length, it would require a considerable force to push them longitudinally through the tube. This resistance of the ice to longitudinal motion may be so great and the force brought into action so intense that the tube will be torn asunder across the line of least resistance.

DISCOVERIES ON THE SITE OF THE AGORA AT ATHENS. — Herr Dörpfeld, the President of the German Archaeological Institute in Athens, has for some time been engaged in a search for the buildings of the market-place, or Agora, of ancient Athens, described by Pausanias, the site of which has always been a matter of dispute. He believes that he has discovered visible traces of the famous well with the nine springs, once known as Enneakrounos, and at this day, as in the earliest times, called Calliroë. The well was built by the Tyrant Pisistratus, and the conduit has been discovered to the south of the Acropolis. The water flowed down from the upper part of the River Ilissus. — *New York Evening Post*.

THAWING FROZEN GROUND WITH SLACKING-LIME. — A novel method of thawing frozen earth for making street excavations was described by H. H. Kelley, Superintendent of the Waltham, Mass., Gas Works, in a paper read before the New England Association of Gas Engineers. Stone lime is spread several inches deep over the place where it is desired to excavate, and is thoroughly wetted and covered with straw. A piece of canvas or tarpaulin is spread over the heap, and it is left for twelve hours more or less. In two cases in which Mr. Kelley has tried this method recently frost 18 inches to 26 inches was removed from the ground. In ordinary cases the expense of the lime would be too great to permit this plan to be adopted, but gas companies can use the lime afterward in their purifiers. — *Engineering News*.

THE ALLEGED BIRTHPLACE OF FRANKLIN. — Americans visiting London this year will be disappointed at finding that one of their favorite points of pilgrimage has disappeared. Upon one of the houses recently demolished for the enlargement of South Kensington Museum was placed the blue tablet of the Society of Arts inscribed: "Here was born Benjamin Franklin." A note-making American mentioned the fact in a most popular American guide to the metropolis. Hence these pilgrimages. I am able to mitigate the natural grief of travellers by the assurance that it was merely an experimental tablet placed there by Sir Henry Cole in his palmy days, and, by accident, never removed. — *Edmund Yates in the N. Y. Tribune*.

SANDSTONE UNDER ENGINE BEDS. — Where sandstone foundation is used under an engine special care should be taken that it does not become saturated with oil, for in many cases noticed, where oil has been allowed to run on to the stone and soak into its surface, the stone is softened so that it becomes friable and is easily broken or worn away. Cases have occurred where engines were being moved or lined up, and the foundation has been found so softened that in one case half an inch had to be chipped off before solid stone was found, and in the other case it was necessary to remove one inch. Whether oil has the same effect on other kinds of stone we are not prepared to state. — *Invention*.

THE ANHALT STATION AT BERLIN. — The most costly of all the Berlin railway stations is the Anhalt station, said to have cost about £800,000. One can hardly credit the statement, as the train-house contains only six tracks. It is simply a palace. Even the great railway stations of London are said to be completely surpassed by the Anhalt station, which is the terminus for trains running to Erfurt, Magdeburg, Carlsbad, Halle, Cassel, Frankfort-on-the-Main and many other points. The heavy passage luggage is taken up by the hydraulic elevators that play so important a part in all Berlin railway stations. The tracks leading out of the station are elevated, and the station is in the heart of the city now, although thirty years ago the location would have been regarded as almost on the outskirts. — *Invention*.

GETTING EVEN WITH PROFESSOR FREEMAN. — Professor Freeman was not always quite amiable in manner, and at Wells he had more than once ruffled the composure of a dignitary of the Church. On the occasion of a public ceremony it fell to the lot of this dignitary, much to his disgust, to propose Mr. Freeman's health. But he got over his difficulty very well, and scored against the Professor by saying something

to this effect: "And now I have to propose the health of our distinguished neighbor, Mr. Freeman, who so admirably illustrates for us the savage customs of our ancestors!" — *N. Y. Evening Post*.

SOME FINE ITALIAN MOSAICS EXHUMED. — From an archaeological point of view, says our Rome correspondent, an interesting discovery has just been made in the neighborhood of that city about half a mile to the north of the famous Villa Livia, at Prima Porta, on the Via Flaminia. By the merest accident, in the open campagna have been found the remains of what must have been a most spacious villa. So far the discovery consists of the pavements of nine rooms, all of them executed in the most beautiful colored mosaics. In the principal room the design represents a Medusa's head surrounded by a garland of the most delicate design intertwined with birds and leaves, in which the various colors are most perfect. But perhaps the floor with the most beautiful design ever unearthed is that in a smaller room adjoining that already spoken of. It represents an Egyptian scene of a goddess holding a snake, which is drinking out of a cup, while another figure is presenting a bird. Nothing could surpass the beauty of the colors, or the grace of the design, and the whole is as fresh and vivid as if it had been just executed. Unfortunately, there seems to be nothing but the flooring of the villa left. The Government have come to an arrangement with Signor Piacentini, on whose property this interesting discovery has been made, to buy the mosaics and have them carefully brought to a museum in Rome. They date from the time of Augustus. — *London News*.

STORING CEMENT. — Professor Meidinger writes in the *Deutsches Bauwerks Blatt*: "With a view to preserving the quality of cement, it is by no means a matter of indifference under what conditions it is stored. In a dry atmosphere it suffers no appreciable alteration, even after lying for several months. Damp air has, however, an injurious effect on it; the hardness of the mortar (béton, concrete, etc.) prepared therefrom is diminished. It was found that cement which was kept in a dry place showed a tensile strength of 17.8 kilogrammes (39.16 pounds) and an elasticity of 201 kilogrammes (442.2 pounds); while for that stored in a damp situation the respective figures were reduced to 13.5 kilogrammes (29.7 pounds) and 143 kilogrammes (314.6 pounds). Cement should, therefore, not be kept in damp cellars, or in places contiguous to much water."

TRADE SURVEYS

It is a matter of congratulation at present among business men representing large interests that two hundred million dollars' worth of foreign securities have been returned from Europe that have not only been safely absorbed, but that during the process of absorption or redemption the prices of those securities steadily advanced. This is a very significant fact. Another matter of favorable comment, especially in financial circles, is that there are symptoms of a repurchase of these and other American securities by foreign capitalists. But little capital has been invested as yet. The return of all these securities was not based upon sound considerations. That our securities will be increasingly marketable abroad is evident, and that European and British capitalists will find it to their interest to buy very largely is a fact which leading financiers do not doubt. When this policy is broadly inaugurated, there will be a turn in the tide and a revival of business. Another point is that the most prominent of the securities that have been recently bought in Europe have been bought at steadily advanced prices. If Europe is going to load up with American securities at present, it cannot but help in a general hardening of prices. The scramble for gold abroad still continues. There is a good deal of apprehension that this struggle may unexpectedly produce undesirable results, and heavy shipments are looked for from this side to meet the increasing demand. This outflow, and the unnatural demand created for gold by the financial policies of foreign governments, must of necessity throw us, willingly or unwillingly, into a position of greater dependence upon white metal. Another favorable feature of the situation is the increasing bank clearings. The increase during January was 13 per cent, as compared to January last year; February, 31 per cent and March, 25 per cent. Another favorable point is that national bank circulation is increasing quite rapidly; the increase during the past year, seventeen millions, and the increase during March, one million. It requires the very best financial management to prevent dangerous stringency; while money is easy, according to reports, it is to be understood in a very limited sense. The agitation for a different financial policy is evidently gaining ground, and no half-way measures will satisfy the people who believe that a different policy is demanded by the best interests of the country at large. Business generally is improving, but the improvement is of a gradual sort. The iron trade is stronger in volume, but weaker in prices. New enterprises calling for iron and steel material are looming up, but orders are for small lots only. Railroad-building requirements are held back. Car and ship building requirements are being hurried in. Builders are pushing ahead quite rapidly, and as yet there are no very serious prospects of labor troubles. In New York and Chicago some obstruction will be made, but the employers in those cities think that the agitations will be local only, and insignificant. Lumber manufacturers are hurrying stocks forward to all points. Hardware manufacturers are very busy filling orders for spring and summer. Textile manufacturers are working almost to full capacity, and are enjoying a good trade. The smaller industries are more busily engaged this month than last, as a rule. Coal production is being held in check at this time, which is rather unusual. Cotton-planters are complaining of low prices and dull demand. The mining of precious metals is being prosecuted with more vigor than for many years, and new finds are being reported in many localities in the West. To all appearances, this will be an excellent year for the miners of gold and silver. Lead and copper production will be measured by the demand for those products. Railroad companies who have land to sell report an excellent season for disposing of it, and special inducements will be offered this year to settlers. Favorable agricultural conditions are reported throughout the Northwest. The distribution of all kinds of goods has been quite satisfactory for the past two or three weeks. Low prices continue, and it is not at all likely that there will be any advance.

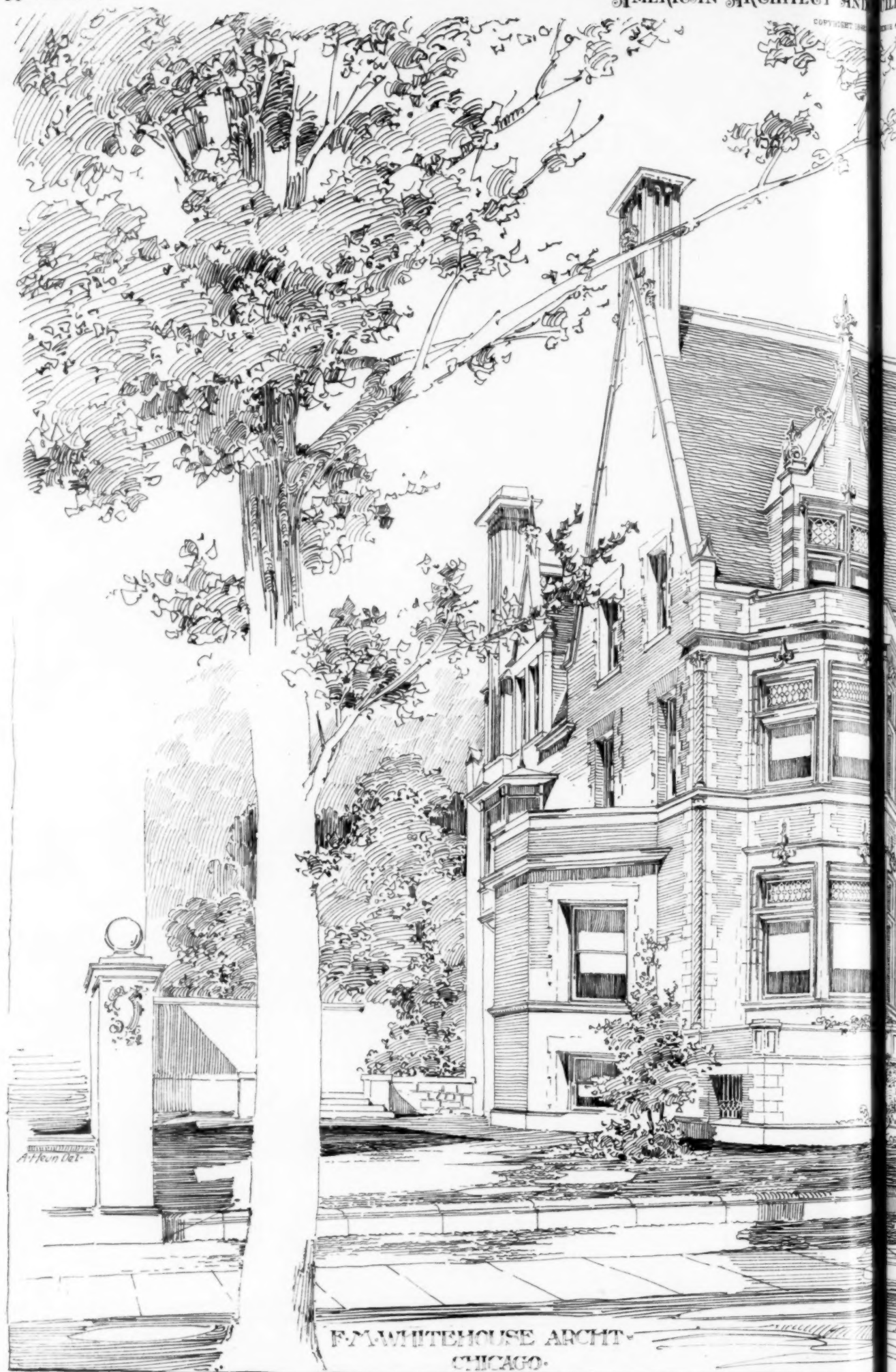
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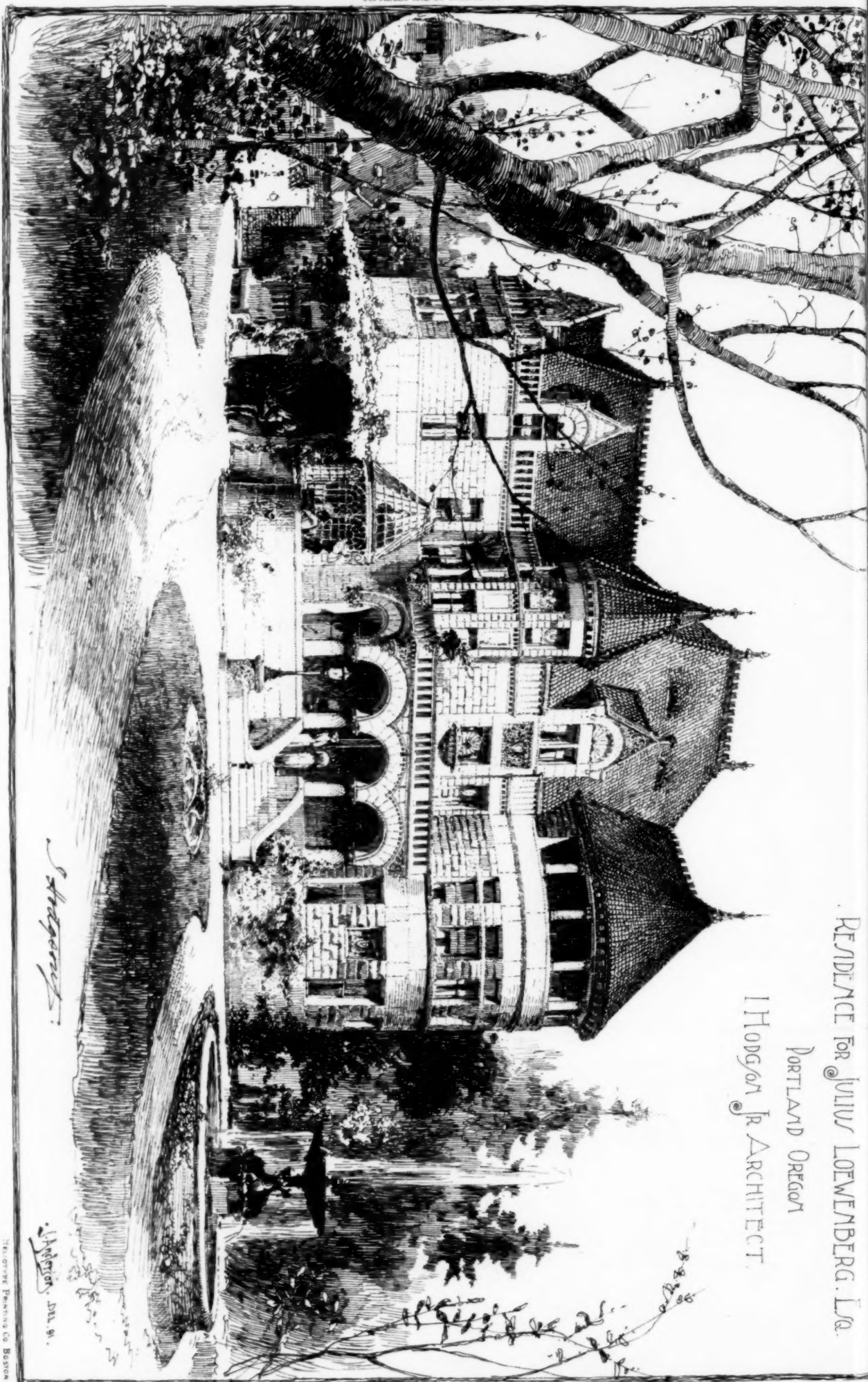


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F. W. WHITEHOUSE ARCHT.
CHICAGO.





RESIDENCE FOR JULIUS LOEWENBERG, L.A.

PORTLAND OREGON

I HODGON JR ARCHITECT.

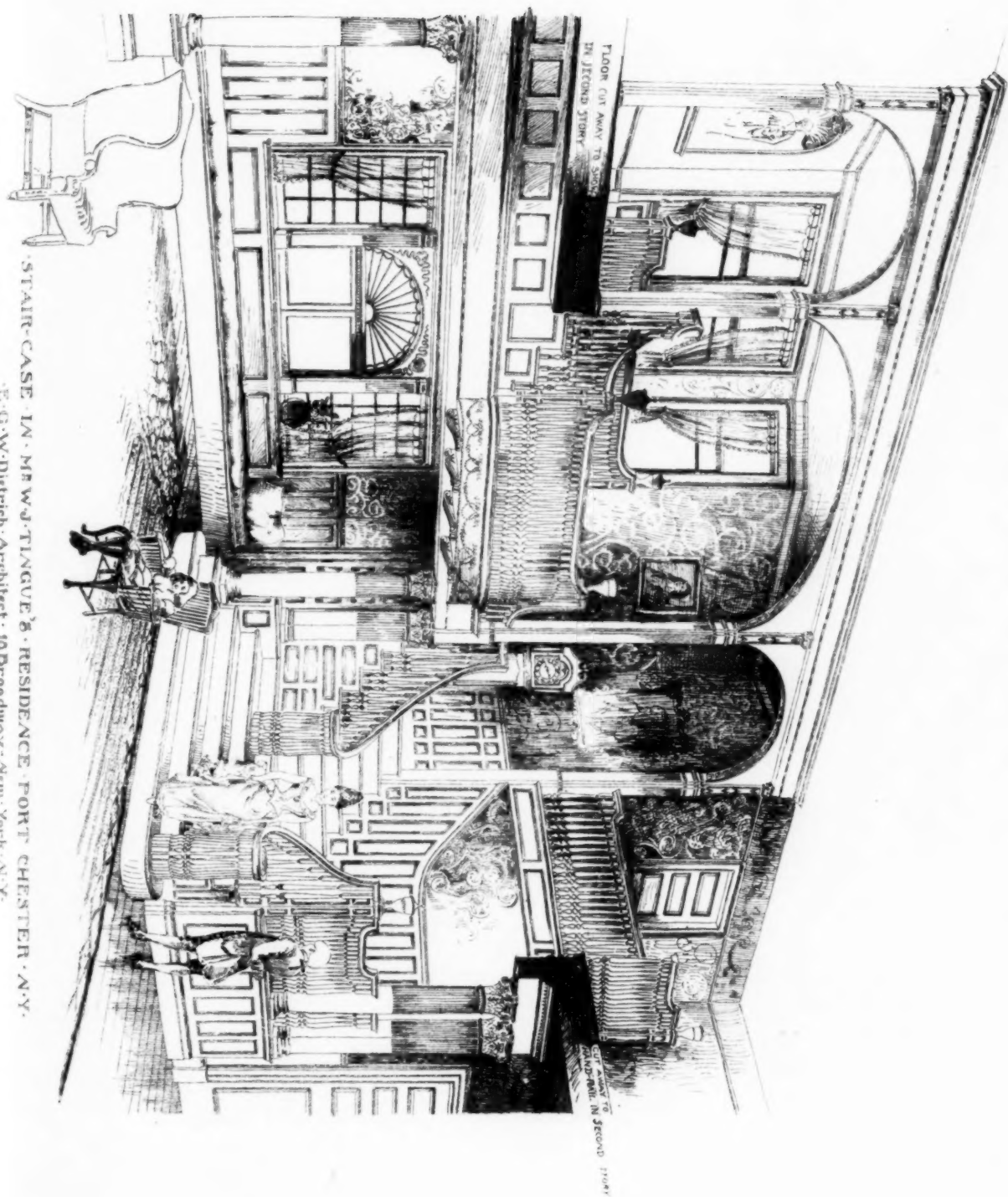
J. Hodgson

J. Hodgson, Dec. 81.

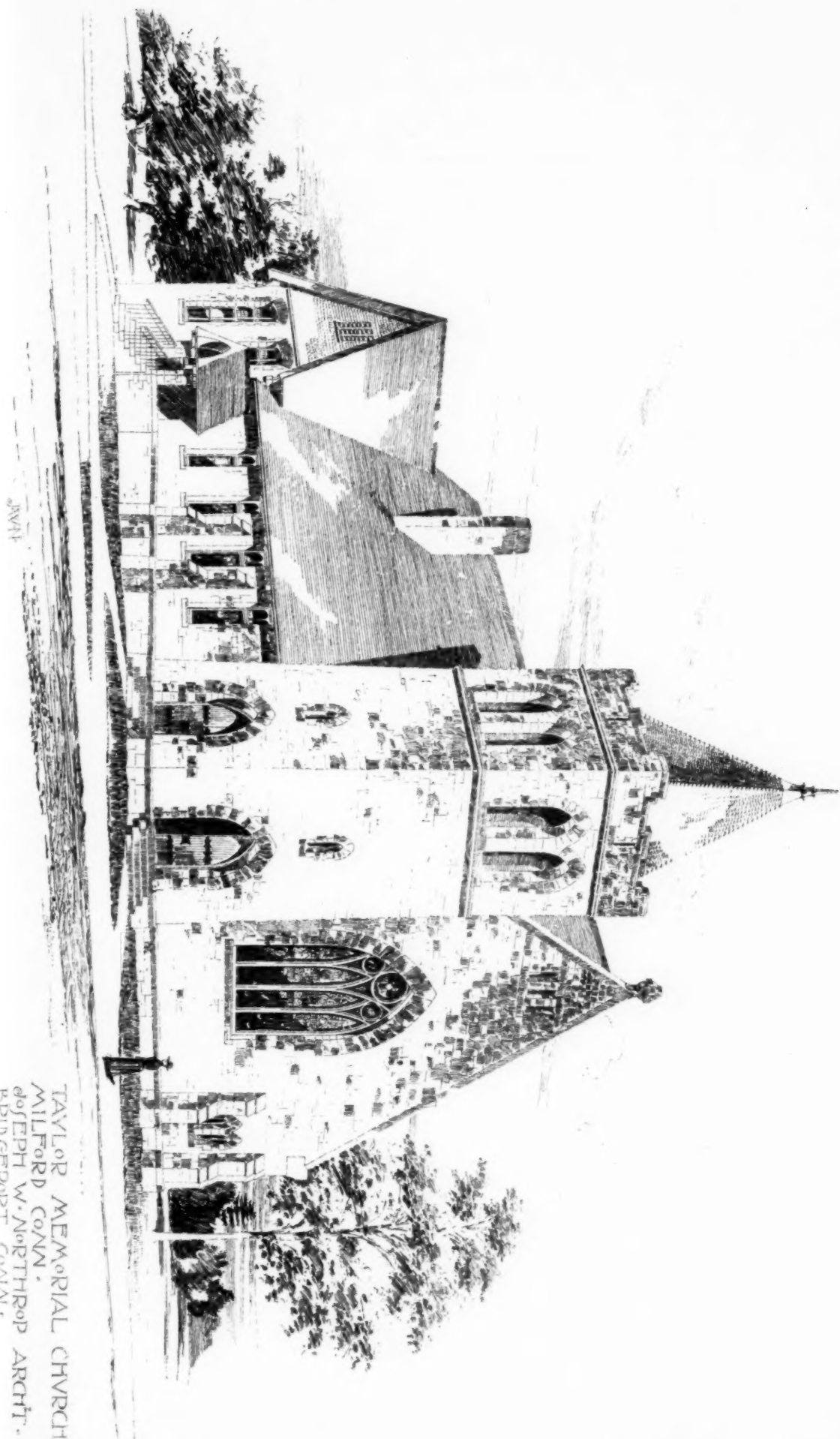


ISABELLA THE CATHOLIC, MADRID, SPAIN
MANUEL OMS, SCULPTOR.

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