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ARCHITECTVRE

ENGINEERING

DECORATION

CONSTRVCTION

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CONTENTS.

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IN the choice of Mr. E. H. Kendall of New York, as the new President of the American Institute of Architects, Mr. Hunt's term having expired by the limitations of the Constitution, the recent Convention showed a wise discrimination. It is to be regretted that Mr. Adler felt himself called upon to decline positively a nomination to the office; but the Institute is still to have the benefit of Mr. Adler's energy and wisdom in his more modest sphere as Secretary, and if it can retain this, and have also the advantage of Mr. Kendall's considerate and dignified leadership, it should be accounted very fortunate. It is likely that a good many things of importance to the profession will occur within the next two years; but, whatever happens, so long as these officers continue to serve the Institute, professional interests will not be endangered by rash or ill-considered action. Meanwhile, we would like to suggest that the present and future members of the Institute might with advantage refer some of their professional difficulties to the Board of Directors. It is unquestionably desirable that the members should come as rapidly as possible to look upon the Institute as their *alma mater*, and to see in it the power and influence of the collective profession, always at the service of honorable and conscientious members, ready to defend them against injustice, and to help them with advice, and, occasionally, with direct intervention. The Institute can now justly claim to be clothed with the authority of the profession, and for the coming term, this authority will be principally exercised by two of the most judicious and experienced men in the country. Any architect would be glad to have the counsel of either Mr. Kendall or Mr. Adler in his business troubles, and that of both is placed by the election at the service of members of the Institute. In saying this, we do not forget the value of the advice of the other members of the excellent Board of Directors, All of them will be judicious counsellors, but all of them do not invariably attend Directors' meetings, and, in practice, the President and Secretary are usually best acquainted with Institute affairs, and their opinion properly carries the most weight.

IT looks as if, probably through the efforts of hungry lawyers, an unwarranted use was likely to be made of the very severe employers'-liability statutes recently enacted in several States. In Massachusetts, not long ago, where the owner of a certain building had arranged to supply power to the occupants of the adjoining building, a pulley was, in some way, allowed to fall, and, in falling, struck and injured a girl employed in the room. The girl sued the owner of the building, a rich, but also a very public-spirited and charitable man, and obtained a verdict for more than twelve thousand dollars damages. The principle adopted by the jury in assessing the damages seems to have been to transfer from the owner's pocket to the girl's a sum so large that the interest of it, if carefully invested, would afford her the same income that she could have earned if she had not been incapacitated from work in any way. To a certain extent, this is proper enough, and a person reduced, by no fault of his own, to hopeless uselessness and pain ought to have, during his life, an allowance from the one through whose fault he was injured, equal to that which he would probably have earned if he had not been injured, but it is impossible to see how justice requires that, in addition to this, the employer should be compelled to furnish a handsome fortune for distribution among the heirs of the injured person, who would probably never have laid up a penny out of his earnings, if he had not been damaged at all. In another case, soon to be tried in Boston, where an elevator came down upon a man engaged in repairing it, and injured him, the plaintiff claims fifty thousand dollars damages. There would seem to be a reasonable question whether a professional elevator repairer ought not to know enough to provide against having the elevator started by people above, who could know nothing about his being under it; but there can hardly be any doubt that, even if, through an employer's fault, a man were totally deprived of the power of earning wages for the rest of his life, it is unfair to compel the employer, not only to pay the man triple or quadruple wages for the rest of his life, but to burden his estate with a continuance or the same payment to the heirs of the injured man forever; yet this is what an award of damages on this principle means. Probably, in practice, an enormous slice of the sum recovered goes to enrich the lawyers who concoct and conduct the plaintiff's case. It would not be a bad idea, in the interest of the poor sufferer, as well as the employer, to add an amendment to the law, either requiring the counsel for the plaintiff to declare under oath the amount of his fees, or limiting him to a certain sum; but a better one would be to follow the lead of the Germans, who make both employer and employé contribute to the payment of premiums on an accident insurance policy for the benefit of the employé. This plan secures maintenance for injured persons, in accordance with the extent of their injury, and indemnity to the heirs of persons killed, without danger, on one side, of ruining a solvent employer, or, on the other side, of leaving the employé of a dishonest or insolvent one wholly without resource in case of accident; while it does not furnish fat pickings for lawyers, or provide means, at the employer's expense, of supporting in idleness forever the posterity of the damaged individual, or, more likely, of the astute money-lender to whom he has sold or mortgaged his claim.

THE operations of the Boston Board of Survey, which is authorized by law, on petition of the majority of property-owners in any part of the city, to lay out streets to the territory concerned, establish grades, and construct the streets, assessing the cost on the owners of the land, have attracted the very favorable attention of the inhabitants of the neighboring towns, and Brookline, the richest and most prosperous suburban village, has already voted to petition the Legislature, at its next session, for authority to establish a similar Board of Survey, with the same powers. As the contrast between a systematic, economical and convenient method of laying out streets, and the extravagant, ridiculous and, in one word, idiotic practice at present in vogue in the other neighboring towns grows more glaring, the example of Brookline will probably be widely followed, and then, at last, will the very important suburban portion of Boston enter upon a period of substantial development. As we once mentioned, out of a total of about one hundred streets in one suburban district, which fairly represents all, more than forty are *culs-de-sac*, or return to the point from which they started; and every year adds considerably to the number of abortions, while the laying-out of a street which can be passed through, to reach any other

point, usually requires the intervention of the County Commissioners, and is an extremely rare event. The consequence is that driving through the Boston suburbs is to a stranger generally one of the most exasperating experiences of his life. Starting, let us say, on a country road, which, however, soon takes a direction away from the point he wishes to reach, he endeavors to find a transverse street which will lead him toward his destination. Of what appear to be transverse streets there is no lack, but to find a navigable one, so to speak, is quite a different matter. Three-fourths of them, in some of the towns, are marked with the warning "Dangerous," and the prudent charioteer takes care not to tempt the perils which lurk within them. Reaching, at last, one without the alarming sign, he turns into it, and drives a few hundred yards, when he reaches a fence, at which the street terminates, either in a neat oval, or a jungle of weeds. Turning, with difficulty, he makes his way back to the high-road, and proceeds, getting always farther from the place he wishes to reach, until he finds another promising-looking street. This, on trial, proves to describe three sides of a square, and conducts him back to the high-road, half a dozen rods beyond where he left it. The next street that looks feasible takes him, between two rows of handsome houses, straight to a pond, and, unless his horse and carriage are adapted for swimming, there is nothing for it but to return to the high-road again. The next public way, perhaps, brings up against a gravel bank, and another, beautifully macademized, leads him to a circular "park," from which there is no other outlet. By the time he has studied the varied topography of all these specimens of suburban engineering, the day has nearly passed, and, he returns to his starting point, with thoughts upon suburban town governments which would hardly bear expression. Of course, the natives understand that the reason why "Arlington Avenue" comes to a dead stop under a tree is that the owner of the land beyond the tree "went back" on his promise to extend it through his property; and that Smithdale Street forms three sides of a square, because Mr. Smith only had six acres of land, and wanted to have his street all on his own ground; but the knowledge of these personal matters does not do much to console the people who would like to use these avenues for the purpose of getting somewhere, and not as subjects of ethical study; while even the tax-payers, when they find themselves confronted with a heavy appropriation for extending a few of these *culs-de-sac* to a proper outlet, begin to regret that means could not have been found for having the proper disposition made at the outset. Such a means the citizens of Boston have now provided for themselves in their Board of Survey, and, although it has only been constituted a few months, its work has shown itself of such immense utility that the general feeling of the citizens, as expressed in the newspapers, appears to be one of deep regret that they had not thought of it before.

OUR English exchanges have a good deal to say about the late John D. Sedding, who died suddenly last spring, almost at the same moment with his wife, who was to a certain extent, associated with some of his work. Sedding was, we imagine, regarded here generally as something of a sentimentalist, and English artistic sentimentalism finds a feeble response among Americans; but he was something more than that, and his personal influence upon the younger generation of architects was excellent. It is curious that Sedding, William Morris and Norman Shaw were, at about the same time, pupils in the office of the late George Edmund Street. With Street, sentiment and the main chance went hand in hand, but he certainly inspired his pupils with lofty ideals. Morris, perhaps the most thorough artist of them all, left the office, after a year's trial of architecture, to make himself immortal, first as a poet, and then as the apostle of art in daily life, and Norman Shaw developed into the most successful dwelling-house designer of modern times. Sedding was called away by circumstances to the West of England, where he assisted his brother Edmund, and, after the latter's death, succeeded him. Ten years of Devonshire and the Welsh border do not do much to expand a man's artistic nature, and, while Morris was writing the "*Earthly Paradise*," Sedding was working patiently at Bristol, and using his holidays to study the old churches in the neighborhood. Soon after his marriage, in 1872, he came to London, where, in the ample leisure attending the first efforts of a young architect, he became interested in the ideas of Mr. Ruskin, and began to copy the plates in the "*Seven Lamps of Architecture*." Later, he became acquainted with Mr. Ruskin himself, and drew for a time under his direction. Some of his earlier commissions were for designs for embroidery and goldsmiths' work; and his young wife executed many of the embroidered pieces, one of which, in particular, a children's pall for St. Alban's Church, covered with flowers, was used at his funeral. His practice increased rapidly, but he kept, throughout his life, to one of the principles which he had learned from Ruskin, if not from Street: — that toilsome correctness of style was of little value beside the freshness of inspiration which is best derived from the study of nature. Although nature apparently produced upon Mr. Sedding, as it has upon Mr. Burne Jones and others, impressions which ordinary mortals find it difficult to comprehend, the principle is not the less the only correct one, and the progress of architecture is simply a matter of its judicious application.

THE police of Camden, N. J. appear to be persons of great energy. Within a few weeks, a certain unfurnished house had been observed to be much visited by parties of men, and the neighbors reported the circumstance to the officers, who immediately decided that the place was used for the manufacture of counterfeit money, and that the visitors were accomplices in the crime. A nocturnal raid was therefore organized, and at a signal, the doors were broken down, and a strong force of policemen took possession of the house. Instead of counterfeiting tools, however, they found a patented apparatus for the utilization of sewage, owned by a Philadelphia man, who had hired the house to set it up in so that he could show it to persons interested in the subject. On this being made clear to them, the police apologized and withdrew, much to the amusement of all the other people concerned.

A PECULIAR decision has recently been given by a court in Germany in regard to the conditions of railway building. Two residents of a small town near the line of a projected railroad subscribed liberally for its construction, on the condition that the station for the village should be in the village itself, and not at some distance from it, as is frequently the case with Continental roads. The railway was built, but did not pass within a mile of the town, and, of course, the station was at the railroad. The two citizens, thinking that a station a mile away could not be regarded as being "in the town," and finding that the personal advantages which they would have derived from having it close at hand would be lost, refused to pay their subscriptions, and the company sued for them. The defence was that the subscriptions were conditional, and the condition had not been fulfilled; but the court held that as the exact distance within which the station must be built had not been defined, a location a mile off must be regarded as a compliance with the condition, if, as in the case in question, it appeared that, for engineering reasons, it was not advisable to have it nearer; and condemned the citizens to pay their subscriptions. The moral of the story appears to be that subscribers to such enterprises will do well to see that their conditions are exactly expressed, and to ascertain beforehand that engineering considerations will not interfere with the plans on which their money is to be ventured.

THE report of the working of the "zone tariff" on the Austrian State Railroads has been published for the year ending in June, 1891. From the figures given in the report, the *Schweizerische Bauzeitung* draws the conclusion that the number of passengers carried during the year, the first of the operation of the "zone tariff," was 43.45 per cent greater than during the previous year. The average price paid for tickets was, however, much less, this being, indeed, a part of the plan; but notwithstanding the reduced cost of travelling, the net receipts from passenger traffic were 3.61 per cent greater than in the year before. This appears to be a very favorable showing. Although the immediate increase of net profit from the increased traffic is not large, it is an evidence of the financial soundness of the plan that there was any increase at all, and as railway managers usually consider that the development of new passenger business, even if it is done at a loss, brings an indirect profit through the increased freighting and other business which follows the greater movement of passengers; the far-seeing official who devised the plan has good reason to be satisfied with its first year's trial.

LIBRARIES.[1] — V.

MEDIÆVAL AND MODERN TIMES. — (*Concluded.*)

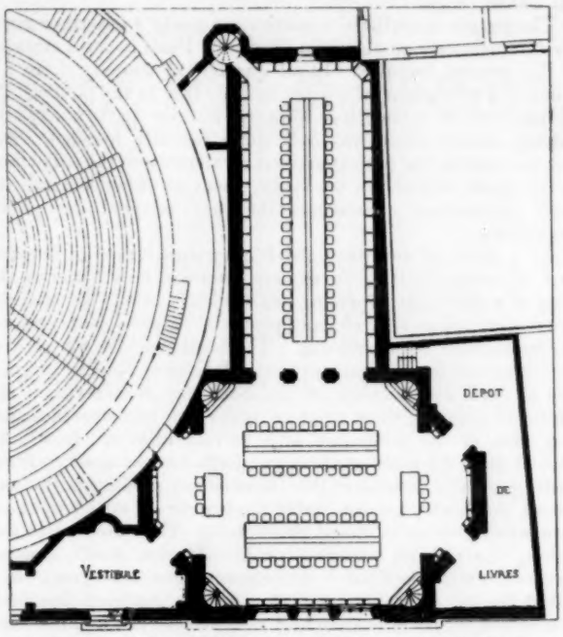

Fig. 23. Plan of the Library of the Law School. (Scale of 0.004 per. m.)

OUR great libraries have no cause to envy those of antiquity; the number of volumes which they contain is larger than that attributed to the greatest libraries that have perished. The [French] National Library contains about two and a half million pieces; and there is an increase of about fifty thousand each year. Even with the projected enlargement of the buildings, we can foresee that it will not be very long before they will be inadequate for the storage of the collection.

Instead of massing together all kinds of literary productions in one place, there is a tendency now to specialize collections; Paris is not behind hand in this regard; outside of the National Library there are several more or less strictly special public libraries such as, the library of the Arsenal, the Saint-Geneviève,[2] the Mazarin Library at the Institute, the library of the Sorbonne, the library of the College of France, the libraries of the Law School, the School of Medicine, the École des Beaux-Arts, the Conservatoire des Arts-et-Métiers and the Conservatory of Music, the libraries and archives of the various ministries, the libraries of the Senate, at the Luxembourg, and of the Chamber of Deputies, the library of the City of Paris re-established at the Hôtel Carnavalet, etc.

Fig. 24. View of the Law School Library.

The library of the Law School deserves special notice on account of the ingenious disposition of its plan (Figures 23, 24, 25). It was designed by M. Lheureux, and comprises a square hall flanked by two hemicycles, and a rectangular hall perpendicular to the first. In niches at the angles of the square hall are winding iron stairways, which lead to the tiers of galleries containing the cases of books. These cases run along the walls of the second hall, and are also reached by a turret staircase in the rear of the room. The iron framed ceilings are very

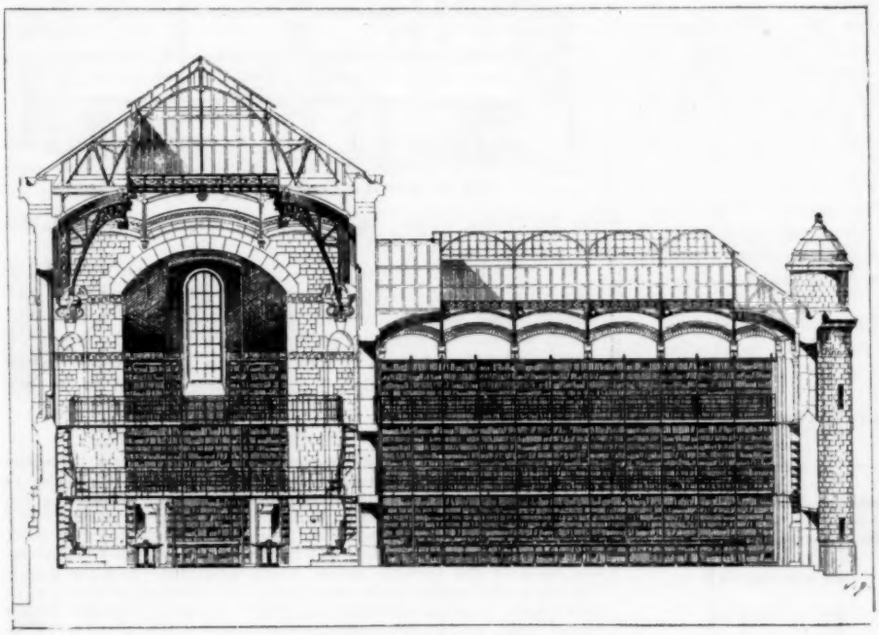

Fig. 25. Section of the Law School Library.

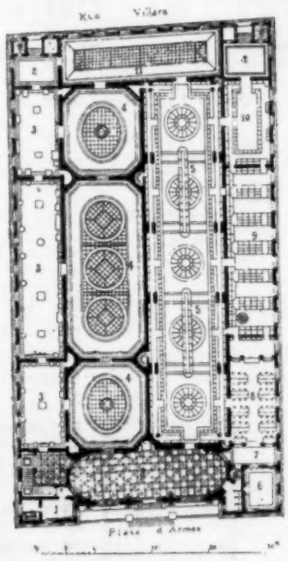

Fig. 27. Plan of the Museum-Library at Grenoble.

1. Concierge.
2. Vestibule.
3. Sculptures.
4. Paintings.
5. Library.
6. Librarians.
7. Anteroom.
8. Reading-room.
9. Book Shelves.
10. Dauphin's Library.
11. Collection of copies.

[1] From the French of Emile Camut, in Planat's *Encyclopédie de l'Architecture et de la Construction*. Continued from No. 827, page 64.

[2] See the plan of this library in Vol. XXVII, No. 737, page 87.

beautiful; they admit the light into these reading rooms, which are lighted in addition by vertical windows as may be seen by the illustration.

Some of our university establishments possess special collections. The same is true of English and German universities,

Fig. 26. Interior View of the Library at Birmingham.

the libraries of which are often rich in literary works of all kinds. Among such, recently founded, we cite those of the University of Vienna (Herr Ferstel, architect), of the Universities of Glasgow, Birmingham (Figure 26), Edinburgh and Strasburg; the last replaces the municipal library, burned by the Germans in 1870. At Athens there is an edifice designed by MM. Schaubert and Hausen, which is used for University lectures on the ground-floor and for a library in the first story.

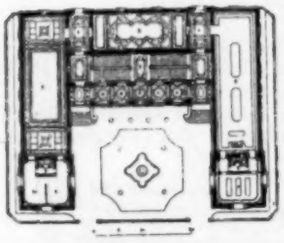

Fig. 28. Plan of the Museum-Library at Toulon.

1. Loggia.
2. Grand Staircase.
3. Gallery of Paintings.
4. Vestibule.
5. Library.
6. Gallery of Paintings.
7. Service.
8. Valuable Books.
9. Prints.
10. Water-colors.

There are many municipal libraries in France; cities which have recently constructed such edifices have combined in them both a museum and a library. Of these the following deserve notice; the museum-library of Grenoble, designed by M. Charles Questel (Figure 27); the library and museum of the palace of Longchamps at Marseilles, by M. Espérandieu; the museum-library of Toulon by M. G. Allar (Figure 28); the museum-library of Havre; the library of Caen, etc.

The departmental archives also constitute interesting libraries; their interior disposition cannot, however, differ

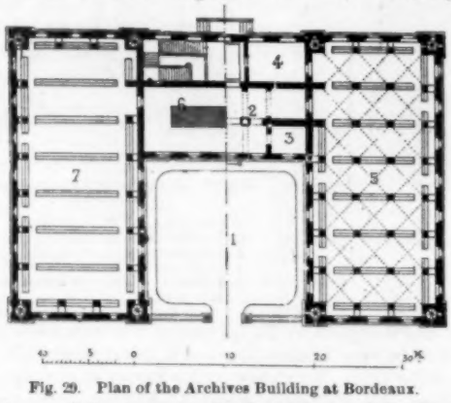

Fig. 29. Plan of the Archives Building at Bordeaux.

1. Court.
2. Vestibule.
3. Concierge.
4. Office.
5. New Documents.
6. Reading-room.
7. Old Documents.

materially from that adopted for the public libraries. At Paris, the archives are installed in the old Hôtel Soubise, in a large hall constructed by M. Gillaume. At Bordeaux, they occupy a special building, the plan of which was furnished by M. Labbé (Figure 29).

The people of civilized countries are ready to sacrifice much for the maintenance of public libraries; Paris is not a stranger to this general impulse. In all quarters of the city there are municipal collections which are entirely free to the public. As an example of circulating libraries we cite particularly the Forney library which was only quite recently founded. Nor can we dismiss our subject without a reference to the collections in the great book-shops, the management of which demands the same precautionary measures that are adopted for public collections.

As a piece of furniture the library constitutes an integral part of every dwelling, in modest interiors, it is found in the form of a glass case of one or two sections; among the wealthy from early times very elegant pieces of furniture for preserving books have been common. The section which we give of the library of the old convent of the Jesuits at Rheims (Figure 30) as well as the view of the *Salle des Manuscrits* at the National Library, show what an important part the furniture may play in the decoration of a private library. It will be noticed that the cases of these two halls are not closed; librarians generally consider this disposition preferable to any other; the books are less liable to deteriorate in the open air than when shut up in closed glass cases. The problem of furnishing the reading rooms of public libraries, which demand certain peculiar detailed arrangements, has been very well solved by M. Labrouste and M. Pascal. Nothing has been overlooked by them; tables and comfortable chairs enable the reader to endure long sittings without weariness, portable desks

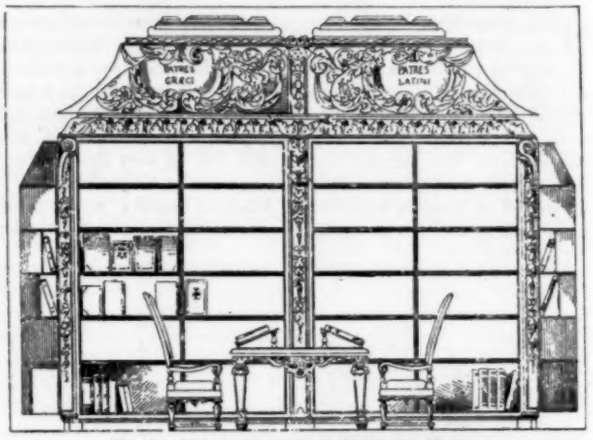

Fig. 30. Library of the Jesuit Convent at Rheims.

for the books, sloping shelves to rest folios on, special tables for the large atlases, and so on, are provided.

We may say in closing that the general disposition of the public library embraces questions of the greatest interest; outside of those special problems the most practical solution of which is required, much scope is given for artistic treatment, a fact to which architects cannot give too much weight when planning a structure designed for the preservation of the productions of the mind.

Émile Camut.

An Obnoxious Garbage Destructor.—Sixteen months ago the contract for disposing of the garbage of the city of Detroit was let to an outside firm. They immediately built works for destroying the refuse by what was declared to be a non-odorous process, but which has proved to be directly opposite. The works were located in a good residence portion of the city, and thousands of citizens were inconvenienced by the horrible smells which emanated from the works. The odors were nauseating in the extreme, and hundreds of people were placed under physicians' care as the result. People who rented houses moved away, people who owned property sold it at a great sacrifice, and the entire section of the city in which the smell reigned supreme was in a fair way to become depopulated. Citizens banded together and started injunction and damage suits, but the trials were delayed by the company until public sentiment became so incensed that even clergymen countenanced the forming of a mob to raze the obnoxious works. Colonel Sylvester Larned, one of the leaders of the local bar, has begun damage suit for $100,000, in consequence of the complete loss of health from living in proximity to the works, and several weeks ago led an onslaught on the works in the court, to secure a perpetual injunction against their continuance. September 19th, the injunction was granted and took immediate effect. Citizens in the odorous vicinity celebrated their victory by speeches, bonfires and fireworks. — *Chicago Inter-Ocean.*

ARCHITECT, OWNER & BUILDER BEFORE THE LAW.[1]—X.

THE ARCHITECT'S POSITION WHEN THE COST EXCEEDS THE LIMIT:

ARCHITECT TO CARRY OUT EMPLOYER'S WISHES UNDER CERTAIN RESTRICTIONS. — ARCHITECT IS BOUND TO KNOW THE LOCAL BUILDING REGULATIONS.

BESIDES serving his employer with skill and care, the architect is bound to carry out his wishes, so far as this can be done without violating the laws, ordinances, building regulations, inspector's directions, or other restrictions to which all citizens are subject, or the rules of sound construction. So far as the local regulations are matters of statute law, the architect is bound to know them, and would be liable to his employer for any damages which might be caused by his neglect or ignorance of them; but he is not bound to be familiar with the decisions of inspectors or referees in regard to points left indefinite by the statute. He should, however, use due diligence in seeing that any directions or decisions which may be given in regard to the work with which he is concerned are complied with, and if extra work is necessary for the purpose, and the owner is not at hand to give the necessary orders, the architect not only may, but should, give them, and the owner will be bound to pay for the work so ordered, while neglect of

EXIGENCIES OF GOOD CONSTRUCTION PARAMOUNT.

the architect to take the necessary steps, in case of such an emergency, will expose him to a claim on the part of the owner for damages if subsequent loss should be occasioned by such neglect. In the same way, the architect must not allow himself to be connected in any way with construction which he knows to be dangerous, or even doubtful, whatever may be the owner's wishes on the subject.

ARCHITECT MUST NOT CONSENT TO DOUBTFUL CONSTRUCTION, EVEN AT OWNER'S ORDER.

It is obvious that a physician who would consent to having one of his patients take a dose of arsenic, instead of bromide of potassium, on the ground of its being cheaper, or who even failed to protest vigorously against such a course, would be fortunate if he escaped a trial for manslaughter; yet architects often acquiesce in very doubtful methods of construction, at the desire of owners, who frequently claim an extensive acquaintance with the art of building. For professional men, such weak compliance is very dangerous. If evil results should follow, the owner might pursue them for having misled him into thinking that such a construction was admissible, and a jury would be sure to agree with him; and it has even been decided in France that an architect is at fault who consents to a piece of doubtful construction at the positive order of the owner.

In general, the courts, as well as people outside the courts, consider it the paramount duty of an architect to build well and strongly. It should be his care to save his employer's money where he can, but not at the expense of the durability of the building which he constructs for him; and if unforeseen difficulties arise, he will find more favor in ordering them properly provided for, at a considerable extra expense to the owner, than in risking the loss of the money already invested, by hesitation in adopting what his superior knowledge tells him to be necessary measures.

OWNER'S WISHES MUST BE FOLLOWED IN ÆSTHETIC MATTERS.

It is very different with matters which do not relate to the construction of the building. Here, the wish of his employer is the only rule for the architect to follow, and no regard for the æsthetic welfare of the owner and his family will justify the architect in involving him in extra expense for decoration or ornament, unless, as is sometimes the case, the owner has given the architect special authority in such matters. In fact, juries are, in this country, generally quite insensible to æsthetic values, and the architect must be prepared to see the owner supported by the courts in mangling his design remorselessly, if there is anything to be gained in the way of money by doing so. In the same way, if there is any incompatibility between the owner's idea of the style of house he wants, and the sum

WHERE LIMIT OF COST IS INCOMPATIBLE WITH EFFECT DESIRED, LIMIT OF COST RULES.

that he is willing to pay for it, his wish in the latter respect is always assumed to be paramount, and the architect who follows the first, and fails to comply with the other, is likely to get nothing for his pains.

From misunderstandings on this point arise nearly all the troubles which an architect encounters in his private business. Very many persons have an unreasonable fear of architects, derived, undoubtedly, from the stories which are repeated from mouth to mouth about the exploits of some of the reckless and irresponsible members of the profession, and give to the one whom they consult a limit of expense ridiculously inadequate to the accommodation which they desire, on the assumption that he will be sure to exceed it. In fact, it is not unusual to hear intelligent men say that they always limit an architect to half the amount that they really intend to spend. The consequence of this is that if the architect is conscientious, he takes

CONSCIENTIOUS ARCHITECTS AT A DISADVANTAGE.

his client at his word, and produces for him a cheap, unattractive plan, which he knows can be executed for something like the sum named, but which, of course, presents only a small part of the beauties and conveniences that the owner had pictured to himself.

If he is not conscientious, or if, as more commonly happens, he knows that his client really means to spend more than the sum he specifies, he guesses at the sort of building that is actually wanted, and makes his plans accordingly; and in most instances the owner is quite satisfied with the result.

There are, however, exceptional cases, where on the one side, an irresponsible and reckless architect deludes an owner, by attractive plans and misleading estimates, into commencing an undertaking which is not completed until the man who pays the bills is half ruined; or where, on the other side, an unscrupulous owner takes advantage of an architect's having exceeded a limit of expenditure which was meant to be exceeded, to rob him of a part or all of the money justly due him.

NECESSITY FOR BETTER UNDERSTANDING BETWEEN OWNERS AND ARCHITECTS.

The remedy for this unsatisfactory condition of affairs lies partly with the owners and partly with the architects, each of whom should be more frank with the other. If an owner wishes to restrict his expenditure within a certain sum, as is usually the case, he should tell the architect so, mentioning also whether he wishes to have the given amount cover the architect's fees, the papering or other furnishing or decoration, the mosquito screens and outside windows, and, especially, the

Continued from No. 823, page 7.

laying out and planting of the grounds about the building. Few persons who build for the first time in the country have any idea of the cost of fences, embankments, filling, smoothing,

EXPENSES SUPPLEMENTARY TO BUILDING.

terraces, sodding, gravel-walks, under-drains, flower-beds, trees, vines, bedding-plants, and so on, which they will need before they are satisfied with the appearance of their place. One good authority lays down the rule that a sum at least equal to the cost of the house itself must be spent on the grounds to obtain an attractive result. This would be much too large an estimate for most suburban places, but, whatever is the amount to be devoted to such purposes, the architect should be informed whether the owner intends to include it in the limit of cost which he specifies. In most cases, the architect himself will be a tolerably good guide as to the cost of simple landscape-gardening, and if he and the owner can understand exactly what is wanted, and how much money is to be devoted to each portion of the undertaking, the result, if the architect is competent, and the owner not unreasonable, is almost sure to be satisfactory; for it is generally the case that the more skilful an architect is, the more he can accomplish in the way of convenience, beauty and healthfulness, with a given sum.

WHAT THE LIMIT OF COST ORDINARILY COVERS.

If the owner says nothing about fences, terraces, or grounds, the architect will generally suppose that the limit of cost given him is intended to cover only the bare cost of the building, commonly without screens, outside windows, or any grading or planting beyond the smoothing of the ground within six or eight feet of the building, and dumping the surplus gravel or clay from the excavations in some convenient part of the place, as this is all that it is usual to include in the builder's contract; and the owner should ask for the additional estimates if he wants them. In any case, however, it should be remembered

INEVITABLE UNCERTAINTY OF ESTIMATES.

that an architect's estimates cannot possibly be anything more than approximate, as he knows nothing of the combinations of local mechanics, or the approaching bankruptcy of some reckless builder, or of many other circumstances which will greatly affect the price for which a contract can actually be made. In general, his estimate, for work of a sort with which he is familiar, will be pretty near the sum which the building ought to cost, with a reasonable profit to the contractor; but there are many cases where contracts cannot be made on this basis, and the owner must pay what the people who have a monopoly of the business choose to demand, or go without his building; while there are other cases where the work can be contracted for at a price below its proper value, with a mechanic who cares for nothing but to get the job, appropriate all the payments to his own use, and then fail, leaving the journeymen, and the dealers in materials, to get their pay as best they can.

In consequence of these uncertainties, it is universally regarded as unreasonable to hold an architect responsible for strict compliance with the owner's wishes in regard to cost. It is always open to the owner, if the estimates of the contractors are too high, to moderate his wishes as to the convenience or beauty of the building, and the architect will generally make no charge for helping him to do so judiciously; but he has no right to dismiss the architect altogether upon this pretext, unless the lowest sum for which it proves to be possible to build the intended structure exceeds in a considerable degree the amount which was distinctly stated to the architect as the limit of expense to be incurred.

WHAT IS REASONABLE COMPLIANCE WITH LIMIT OF COST.

Just where the line is to be drawn between a reasonable and unreasonable excess of the estimates, or of the actual cost,

MAY BE AGREED BEFOREHAND.

over the limit fixed, is not quite certain. It is sometimes set by agreement at 25 per cent, and this seems to meet with the approval of ordinary people, but the arrangement should be made before the work is begun. After it is completed, and the builder has explained to the owner that all the delays and blunders that have occurred about the building have been entirely due to the fault of the architect, the latter will have more difficulty in reaching an amicable understanding with his employer.

WHAT COURTS THINK.

If he should fail to do so, and the aid of the courts should have to be called in, he will find them tolerably liberal in their ideas of the latitude which should be afforded him in such matters.

The most important case involving this point to be found in our records was decided in Texas.[1]

Here an architect was, as he said, instructed to prepare plans for a hotel, to cost "about $100,000." After the plans were made, the lowest estimate which could be obtained for carrying them into execution was $102,475. The owner then abandoned the undertaking, and refused to pay the architect anything; and the architect brought suit for the compensation which had been promised him. The owner claimed that the limit which he gave the architect was $75,000, instead of $100,000; that, the lowest estimate having exceeded $100,000, he was not bound to pay the architect anything, even on the architect's own version of the matter; and that the architect omitted to include his own commission of five per cent in the estimated cost, so that the lowest estimate should have been estimated at $107,589.73. The court below instructed the jury that if the owner really directed the architect, as he alleged, to make plans for a building to cost $75,000, and it turned out that it would cost more than $100,000 to carry the plans which were made into execution, the architect could recover nothing for making them; but if the direction given was to make plans for a building to cost about $100,000, the preparation of plans which would cost $102,475 to execute was a sufficient compliance with the instruction.

ARCHITECT'S FEES NOT PROPERLY A PART OF ESTIMATED COST.

As to the architect's fees, and the expense of superintending the building, the court held that they were not properly to be regarded as a part of the estimated cost; but even if they were to be so regarded, the court considered that the total amount, of $107,589.73, would still be "about $100,000," and the agreement, as testified to by the architect, would have been complied with.

The owner's counsel appealed from these rulings, but they were sustained by the Supreme Court.

Here, therefore, the Supreme Court thought that if the lowest estimate had been one-third greater than the limit given the architect, the latter could have recovered nothing for his work; but an excess of about eight per cent, where the limit had been given only as "about $100,000," was not sufficient to deprive him of his right to his pay.

In an English case, an architect made plans for a schoolbuilding for a board of trustees, who had only £1,350 in their hands to pay for it.[2] After the plans were made, the architect estimated that it would cost £1,545 to carry them out; and he repeatedly assured the trustees that his buildings "never exceeded the contracts," unless changes were authorized by the owners themselves. After these plans, and his estimate, had been presented, he suggested some changes, which, he said, he thought could be included in the estimated price. The plans were then submitted to builders for bids, and the lowest bid received was £2,056.

The trustees then told the architect that they should do nothing further about carrying out his plans, and returned his drawings; and he sued them for his pay. There was contradictory evidence as to whether the original plans could have been executed for the sum estimated by the architect, and whether the discrepancy between this and the actual bid arose from the additions and changes made in them; and the question was submitted to the jury, whether the bids were reasonably

A QUESTION FOR THE JURY IN ENGLAND.

near to the architect's estimate, so that the trustees ought to have employed him. The jury disagreed on this point, and were discharged, and the case appears to have been settled out of court.

Here, therefore, a jury seems to have found it doubtful whether a discrepancy of nearly one-third between the architect's estimate and the lowest actual bid was sufficient to deprive the architect of his right to payment for his work.

ESTIMATES IN COMPETITION.

Where the plans are selected by competition, it is very commonly the case that committees are deceived by estimates made

[1] Smith *vs.* Dickey, 74 Tex. 61.
[2] Nelson *vs.* Spooner, 2 F. & F. 613.

by unskilful and irresponsible architects; and even the better class of architects, who feel that it is a mere chance whether they get the work, are apt to be much less careful in making their estimates than they would be in dealing directly with a confiding client; so that public competitions are often followed by financial griefs on the part both of architects and owners.

In 1884, the two celebrated architects, Bourdais and Davioud,[1] were selected in competition as the architects of a combined theatre and hotel, to be erected by the municipality in the town of Cannes. The limit of cost was fixed by the terms of competition at 500,000 francs for the entire building, one-half this sum being allotted to each part. When the plans were ready for estimating, it was found that the cost of the hotel alone would be 417,000 francs. The municipality, nevertheless, began operations, and spent 70,000 francs in the preliminary work on the building, and then suddenly decided to abandon the construction of the theatre altogether, and, after dismissing Davioud and Bourdais, employed another architect to complete the building of the hotel. The programme of competition had reserved to the municipality the right to abandon the whole affair, paying the successful competitor 2,500 francs, or to pay 2½ per cent on the cost for plans and specifications alone. Bourdais brought suit for 2½ per cent on 417,000 francs, the estimated cost of the hotel, together with damages for wrongful discharge. The court decided that he was entitled only to his commission of 2½ per cent on 250,000 francs, the expenditure contemplated in the programme, and that he had no claim for damages for his discharge. If the town had done nothing about carrying the plan into execution, it would, under the conditions of the programme, have had to pay only the 2,500 francs stipulated; but, having begun operations, it could not claim to have abandoned the undertaking, so far as Bourdais was concerned.

In another case,[2] decided in Illinois, an architect submitted plans in competition for a church. They were accepted, on condition that they could be carried out for a certain sum. It

CONDITIONAL ACCEPTANCE OF PLANS.

was proved that they could not be carried out for that sum, and the church refused to pay the architect for his work. The architect brought suit, but he failed to show any promise to pay him for his plans, except the conditional one, and the court held that he was not entitled to recover anything.

THE RESPONSIBILITY OF THE ARCHITECT FOR HIS OWN WORK. — THE RESPONSIBILITY OF THE ARCHITECT, AS DISTINGUISHED FROM THAT OF THE BUILDER.

We have seen that the present tendency is to separate the responsibility of the architect from that of the builder, making the former liable only for the consequences of what is shown to be lack of ordinary professional skill and care in preparing his plans and specifications, or in supervising the work under his charge. Within this limit, however, he is held to a strict accountability. The reports of French courts have contained, in past years, accounts of cases in which this accountability has been enforced with what seems cruel severity, and the modern French architects complain, apparently with reason, that architects are held responsible for mishaps which, if they were to occur in buildings constructed under the charge of engineers, would be looked upon as cases of *force majeure*, or as the result of an excusable oversight.

One reason for this is that architects are nowhere, except, perhaps, in Germany, organized as closely in defence of their common interests as engineers, and the world is always disposed to crowd a little those who are too feeble to defend themselves.

In this country, where the standard of practical knowledge in the profession is probably higher than in France, the dread of expert investigation into their work seems to be much less common among architects, but it is probable that there would not be much difference in the strictness with which they would be pursued for a real fault. In a California case,[3] Moore & Foss, a firm of architects, of reputed skill, contracted to build for Laird & Chambers a dam, to be 40 feet high, and to be capable of resisting all floods and freshets for two years after completion. Before the dam was fully completed, it was washed away, and the water destroyed a store, and other property, situated on the stream below. Suit for damages was brought against Laird & Chambers, the owners of the dam. It was proved that they had not visited the dam from its commencement until after the break: that they had prescribed no plan, and furnished no materials, and had not received the work from the contractors. It was also proved that the plaintiff, Boswell, had been notified, fifteen hours before the dam gave way, of the anticipated danger, but had paid no attention to the warning. The court held that Moore & Foss, the architects, or rather, in this case, the contractors, were responsible for the damage, and not Laird & Chambers.

ARCHITECT'S RESPONSIBILITY TO THE PUBLIC.

A case[4] more in point is one decided in Missouri some years ago.

A building was in process of erection under the "general charge and superintendence" of an architect. A part of the construction of the building consisted in a wall supported by iron tubular girders, resting on cast-iron columns, extending through two stories, with flanges cast on them at the level of first-story floor, to receive the ends of the first-floor girders. There was some evidence to show that the tubular girders were of light and cheap construction.

Two of the columns settled, breaking the iron plates and bed-stones under them. The architect advised the owners to raise the columns that had settled, and to employ one Bashore to do the work. During a consultation between the architect and the owners on the subject, Shickle, a member of the firm which supplied the iron-work, learning that the architect proposed to put jack-screws under the flanges of the columns, at the first-floor level, advised him not to do so. The architect, however, apparently after consultation with Bashore, ordered them to be raised in that way. One column was thus successfully raised, but in raising the second, the cap, on which the

RAISING COLUMNS.

second-story girders rested, broke off, letting the girder drop. There seems to have been no attempt to shore up the walls between the columns, and the dropping of the end injured the girder so much that it gave way, bringing down the wall that rested on it. A workman was killed by the falling masonry, and his widow sued the architect for five thousand dollars damages for the loss of her husband, alleging that the catastrophe was due to his negligence. There was evidence to show that it was doubtful whether the construction would have been permanently secure in any case, owing to the weakness of the girders and columns; and it was proved that the architect was absent at the time of the raising of the column.

The defence rested on the ground that no negligence of the architect was shown, and that, in any case, he was only the agent of another person, and not himself responsible for any omission to do his whole duty.

The jury found a verdict for the widow, in the full sum claimed; and the Supreme Court sustained the verdict, saying that an architect "having the general charge and superintendence of the construction of a building, was held to be responsible for the killing of a workman caused by the falling of a wall, which resulted from the giving way of supports on which it rested, under the working of a jack-screw, although the appliance was put to work under the immediate direction of another person employed by the owner of the building, and while the architect was absent, where it appeared that the manager of the jack-screw was employed under the advice of the architect, and subject to his direction, and that he knew and approved of the method adopted for effecting the raising. Whether the wall fell because the plan for raising it was a bad one, or because the supports were inadequate, in either case the disaster was attributable to positive misfeasance for negligence in a work which the architect undertook, but in which he failed to exhibit the care and skill which the law imposed upon him. For such negligence he was responsible, not merely to his employer, but to those injured in consequence, and the question whether, and in what respect, he was guilty of negligence, was one for the jury, under appropriate instructions. The doctrine that agents are not responsible to third persons, for mere nonfeasance, has no application to such a case."

THE ARCHITECT'S RESPONSIBILITY FOR THE CORRECTNESS OF HIS CERTIFICATES.

A case[5] of considerable importance, involving the responsibility of an architect for a certain part of his work, was

[1] Bourdais et Davioud *vs.* Cannes. Dalloz, 1885, 3-4.
[2] Ada St. M. E. Church *vs.* Garnsey, 66 Ill. 132.
[3] Boswell *vs.* Laird, 8 Calif. 469.
[4] Lottman *vs.* Barnett, 62 Mo. 159.
[5] Irving *vs.* Morrison, 27 C. P. (Upper Canada) 242.

decided in Canada a few years ago. It seems to be the only case, decided in a court of record, covering this particular point, so that it seems proper to refer to it, although it may be doubted whether it would be followed as a precedent by our courts.

An architect named Irving was engaged to plan and superintend a house, to cost $25,000, and was to give certificates from time to time, for 85 per cent of the value of the work done. There were several contractors. One of the contractors failed, while the work was going on. At the time of his failure, he had received certificates to the amount of $2,950, and this amount had been paid him by the owner, on the presentation of the certificates. The owner was obliged to complete this contractor's work, at an expense much exceeding the balance due him under the contract; and it was ascertained that, at the time of his failure, the actual value of the work he had done was only $2,700, and he ought, under the contract, to have received certificates for only $2,295.

When the house was done, the owner refused to pay the architect, who sued him for $910, being a balance of $900 on his commission of 5 per cent, with $10 for advances for advertising. The court held that the architect's estimate of the amount due him was correct, but that the owner was entitled to deduct from this $655, being the difference between $2,950, the amount he had actually paid the defaulting contractor, and $2,295, the amount which ought to have been certified as due him. The case was appealed to the Court of Common Pleas, which confirmed the decision of the court below.

Legal Principles Modifying Responsibility.

There are some legal principles which modify the responsibility of architects, as well as of all other persons under similar circumstances. For example, if a person works gratuitously for another, he is not bound to so strict a responsibility as if he is paid for his services. In the language of the law, he is then not liable for negligence, unless the negligence is gross. However, the injured party naturally thinks that any negligence is gross, and tries to impress his opinion on the court, so that too much reliance should not be placed upon this exception. As an instance of what is legally gross negligence, the books give a case[1] in which an over-obliging individual gratuitously collected $140 in rents for another person, and, instead of forwarding the money at once, left it with his sister, from whose house it was taken by a burglar.

He was sued for reimbursement of the lost money, and the case was carried to the Supreme Court of Illinois, where a majority of the judges decided that his conduct, in leaving the money with his sister, was gross negligence, and that he must make the amount good.

Where damage results from the negligence of any person, it seems to be the law that the injured person cannot recover interest upon his claim;[2] and it has been held in New York,[3] apparently upon good authority, that there can be no recovery of damages for injury to the person through any one's negligence, against the representatives of the wrong-doer after his death.

[To be continued.]

Concrete Buildings. — The members of the Technical Society of the Pacific Coast lately went to Palo Alto on the invitation of E. L. Ransome, who has nearly completed two large concrete buildings for the Leland Stanford, Jr., University. One of these is the girls' dormitory. The larger one is the museum building, and is the finest piece of building concrete work yet done in this vicinity. The structure is absolutely fireproof, and intended also to be earthquake-proof. It is built on the system patented by Mr. Ransome, so as to be a homogeneous structure as to walls and partitions, there being no joints. Twisted iron rods are used for additional strength where necessary. The cement is mixed in the Ransome patent mixer and elevated to points where used. A large force of men has been at work on this building for some time and it is now almost complete. Even the interior arches and ceilings are of concrete. The stairways are made of concrete, and these will be covered with marble steps. The hallways will be finished in marble over the concrete. There is no wood anywhere in the building, the window frames, etc., being of metal. The exterior is furnished with a smooth coat of cement to resemble brownstone. The heavy columns of the entrances are, like the main structure, of concrete, and the statuary to surmount the building is moulded of the same material. There are two concrete buildings now and others are to follow. They were built by contract by Messrs. Ransome & Cushing in an exceedingly short space of time. Stone buildings of equal dimensions would have taken three or four times longer to construct. — *Scientific American.*

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[1] Hindman *vs.* Borders, 89 Ill. 336.
[2] Dambarst *vs.* Mo. Pac. R. R. Co., 32 Mo. App. 350.
[3] Norton *vs.* Wiswall, 14 N. Y. P. R. 42.

ANNUAL ADDRESS OF THE PRESIDENT OF THE AMERICAN INSTITUTE OF ARCHITECTS.

From the Rathhaus Leyden, Holland. From *Architektonische Rundschau.*

Gentlemen and Colleagues:

How appropriate that our annual convention should be held here to-day — to welcome this Chapter on having attained its majority — it being just twenty-one years since the Boston Society of Architects made application, and was recognized as a Chapter of the American Institute of Architects in December, 1870.

Since then two conventions have been held in this city, the fifth in November, 1871, and the eleventh in October, 1877.

In 1871 we had the good fortune to be presided over by the first President of the Institute, Richard Upjohn, who held that office during a period of sixteen years.

Thomas U. Walter, the second President of the Institute, and who served this association during twelve years, presided in 1877.

Their addresses then, as on all similar occasions, were full of earnest thought, professional pride and good advice, worthy of our most careful consideration; and to them we owe much of the steady progress of the Institute which they served to the very end of their careers.

At the Convention held in Cincinnati, 1889, the consolidation of the American Institute of Architects with the Western Association of Architects took place, when it was very wisely decided that no one should hold the office of President for more than two successive years. Having been elected to the presidency on that occasion, I will now proceed to deliver my farewell address.

Since our last Convention, we have to mourn the loss by death of six Fellows of the Institute: John W. Root, of Chicago, Ill.; O. P. Hatfield, of New York; E. T. Littell, of New York; John W. Hammond, of Frankfort, Ind.; Herbert C. Burdett, of Buffalo, N. Y.; John Otter, of Chicago, Ill.

In the death of our late Secretary, John Welborn Root, the profession at large has sustained a great loss; while those of us who knew him must ever cherish the memory of one so genial and kind-hearted.

He was a man of culture, indomitable energy and great executive ability, as his numerous works testify, many of which show marked originality. A short time before his death he had been appointed Consulting Architect of the Columbian Exposition, an office for which he was admirably well fitted.

O. P. Hatfield, our former Treasurer, and Emlen T. Littell, the late President of the New York Chapter, were both men of ability and sterling worth, who during many years gave proof of their devotion to the Institute.

Mr. George C. Nimmons, under Mr. Root's direction, was actively engaged in the publication of our last proceedings at the time of Mr. Root's death. He was therefore appointed Secretary *pro tem*, by your Board of Directors, in order that he might complete this work so satisfactorily commenced.

Later, at the urgent request of your Board, Mr. Dankmar Adler accepted the position of Secretary.

I am sorry to add that in the transfer of the Secretary's documents several were mislaid or lost; among others, a number of Chapter charters signed by me, and which awaited the signature of the Secretary, and of which, I understand, one only was signed by him.

During the past year two new Chapters have been formed, our membership has steadily increased, and, I rejoice to add, that our financial condition is satisfactory.

In the Report of the Board of Directors, which will presently be submitted, your attention will be called, among other matters, to the urgent necessity for some decision on certain points relating to the admission of Fellows and the formation of new Chapters — an important matter discussed at the last Convention, but left unsettled.

In view of the fact that I was unable to be present at the last convention, I beg permission now to express my opinion concerning the advisability of requiring all members of the Institute, that may hereafter be elected, to belong to one of its Chapters.

My reason for believing that this should be compulsory, is that everything possible should be done to strengthen the Chapters: on their vigor the life of the Institute depends; without the Chapters the Institute could accomplish little, if anything. Each Chapter should be in constant touch with its surroundings, and should keep watch of all matters of interest to the profession, and should be ready at all times to give warning or advice, as the case may be. How, otherwise, would it be possible to introduce the many needed improvements pertaining to our calling, the want of which is so sorely felt throughout the country, such as proper building laws, guidance and advice about the location and the designing of public buildings; the laying-out of streets, public squares and their protection, etc.? Daily matters of public interest present themselves, about which we should give our professional opinion firmly and fearlessly. If necessary, we should be aggressive, ever ready to expose any scheme, which, if carried out, would prove detrimental to the public good. Such work cannot be done at our annual conventions; it can alone be accomplished by the Chapters, and such work, properly directed, would be beneficial not only to the general public, but to every follower of our profession. I consider it therefore the bounden duty of every member of the Institute to aid the Chapters in every possible way. If unable, on account of professional engagements or otherwise, to give one's time to such good work, one should at least bear his share of the expense incurred in its vigorous prosecution.

Marked progress in our art, both in design and construction, is everywhere observable; and, while it would be eminently proper at our conventions for the President to review some of the more prominent examples, it is obviously impossible, in view of the vast extent of our country, to allude to them in other than a general way.

The noble edifice so generously offered for our use on this occasion is a notable example; a landmark to which future generations will point with pride; an everlasting proof of the cultivated taste of our time and a glorious monument to the well-deserved fame of its designers, who, if I mistake not, were appointed by a Board of Trustees, after an unsuccessful competition.

How fortunate that this Board should have had the moral courage to express and to stand by its opinion!

The thanks of the community are due to all concerned in the erection of such a pile, and their names should be inscribed in some conspicuous place, as a testimonial of the gratitude and esteem of their fellow citizens.

Much has been and yet remains to be said in favor of and against competitions; nevertheless, the fact remains that they are in vogue, and this method of procuring designs will probably obtain. It is only essential for us, therefore, to lay down sound rules and regulations which will insure fair play and which we should strictly adhere to.

The firm and dignified stand taken by many among us in regard to competitions is already producing good results, so that now it is not unusual for individuals and corporations to obtain professional advice as to how they should be conducted, and very generally the awards are now made by one of our own craft.

This is as it should be, nor was it altogether unexpected. The public had only to be enlightened on the subject to willingly remunerate the professional man for the time, trouble and expense necessarily incurred.

I grieve to add that, in so-called "close" competitions, designs are sometimes sent in by uninvited parties. I need hardly say that such action is injudicious and undignified, tending as it must to lower the standing of the profession.

I am happy to add that this practice is gradually dying out.

An event of considerable interest to the profession has occurred since last we met. I allude to the method of procedure followed in obtaining designs for the principal buildings of the Columbian Exposition.

The Chief of Construction and Advisory Board to the Committee on Buildings and Grounds, reported several methods, as follows:

1st. The selection of one man for the entire work.
2d. General competition.
3d. Limited competition.
4th. Direct selection for each building.

In an exhaustive review of the different methods handed in by the Advisory Board, *direct selection* was recommended for the principal structures, with the proviso that the architects selected should meet in conference and agree upon a general scheme of procedure and various other matters that might be submitted to them.

This recommendation was adopted by the Committee on Buildings and Grounds whose action was final, and it is to be hoped that there will be no cause for regret at their decision.

Believing that it may be of interest, I venture to state in a general way how the plan adopted has thus far worked.

At the first conference, held in Chicago, of the ten architects selected, together with the Chief of Construction and the Consulting Landscape Architects, the duties and responsibilities of all were definitely defined, and the question of compensation, so far as the architects were concerned, agreed on.

The latter question was rather an intricate one, principally on account of the limitation of employment, each architect being only required to furnish a general design, one set of full and complete general working-drawings, and full details of all work of an artistic character connected therewith, together with such descriptions and instructions as might be necessary to ellucidate fully his views as to construction and treatment.

Everything relating to the construction and stability of the work was delegated to the Bureau of Construction.

A report on the various matters submitted to the conference was furnished to the Committee on Buildings and Grounds, and was adopted.

The various work was apportioned as follows, viz: Transportation Building, to Adler & Sullivan; Mines Building, to S. S. Beman; Horticultural Building, to W. L. B. Jenney; Fisheries Building to Henry Ives Cobb; Entrances, to Burling & Whitehouse, all of Chicago. Manufactures and Liberal Arts Building, to Geo. B. Post, New York; Agricultural Building, to McKim, Mead, & White, of New York; Electricity Building, to Van Brunt & Howe, Kansas City, Mo.; Machinery Building, to Peabody & Stearns, Boston, Mass.; Administration Building, to Richard M. Hunt, of New York.

Each architect was required to submit his design at a subsequent meeting, with such suggestions as he might deem proper.

It was decided that the last five mentioned buildings should be grouped around three sides of the great court or plaza, 800 feet wide, and extending from the lake, inland, over 2,000 feet, thus forming a court of honor, so to speak, to the Exposition, the two principal entrances to the Exposition, one by land, the other by water, being at either end. A pier, of monumental character, extending about one-quarter of a mile into the lake, furnishing ample accommodation for steamers and every kind of craft.

Just here let me say a few words about the site.

You may remember that in the discussions as to the comparative merits of New York, Chicago, and Washington, for the holding of the Exposition, one of the arguments used was, that while elsewhere a good site for the purpose was not easily to be obtained, square miles were available in the environs of Chicago.

It was not a little surprising, therefore, at one's first visit to the selected site, Jackson Park, on the lake shore, several miles south of the city proper, to find no small portion of it under water; the surface of the ground being, in many places below the level of the lake.

To the ordinary mind it was an impossible site; but to the genius of the Consulting Landscape Architects, Messrs. F. L. Olmsted & Co., is due the credit of overcoming the natural difficulties by the introduction of a novel feature, namely, a means of communication between the various buildings by water as well as by land, their general plan showing a great basin of water occupying the middle of a principal court, smaller lakes and ponds being supplied with water through various canals connecting them with this basin; the excavated earth obtained in making these water-ways to be used for filling-in purposes, to raise the general level of the terraces surrounding the court on three sides, upon which would stand some of the principal buildings of the Exposition.

This general scheme was at once approved, and, after various discussions, a revised plan showing the general lay-out of the ground was agreed on, submitted to the proper authorities and was adopted by them.

The architects in charge of the buildings about this court, after considerable thought and discussion, decided that it would be wiser to treat the façades on the courts in a quiet way rather than attempt to vie with each other in the solution of that vexed problem, "Iron Architecture," a problem never yet altogether satisfactorily solved.

The last two French expositions showed great merit in the adaptation of iron to architectural effects, but much yet remains to be accomplished before the artistic mind will be satisfied; and certainly, if Paris, with her multitude of artists and artisans of the highest grade, and having plenty of time for the study and execution of this problem, could not satisfactorily solve it, it would have been foolhardiness to attempt it on this occasion, the time being so restricted; besides which it would be well-nigh impossible to secure harmony in the several designs, whose authors were hundreds of miles distant one from the other.

Furthermore, in view of the fact that in all probability examples in every style of architecture would be found in the vast number of structures to be erected, it was deemed advisable that the court should be treated in a dignified way, in the Classic style — each one to be left free in regard to his façade — the only restriction being that the main cornice be fixed at a height of 60 feet above the terrace level, not including any prominent features, such as towers, etc.

It was further deemed advisable, by introducing a dome or otherwise, to give prominence to the Administration Building, located at the west end of the court, and at the intersection of the two main axes of the plan, one extending north and south, the other east and west.

Should the general effect of this court prove to be what its designers intended, I can but believe that it will be a benefit to the public and to the profession, a practical illustration of that dignity and repose so characteristic of Classic architecture, features too often nowadays lost sight of in the search for originality, not to say eccentricity.

It is useless, perhaps, to add that perfect harmony has reigned at all the conferences, which have demonstrated the great benefit resulting from an interesting and earnest discussion of the many important points naturally presenting themselves.

These conferences have also accomplished much in strengthening the bonds of fellowship, not only among ourselves, but also with our coworkers, the sculptors and the decorators, on whom so much depends in the execution of our projects.

Thus a precedent has been established in the right direction; the high standing of the profession has been fully recognized, and it is to be hoped that this step will inaugurate a new era in the employment of members of our profession.

When we consider how rarely, in this country, any time can be found for the serious consideration of art matters, we cannot fail to give unstinted praise to those who have directed this great undertaking in such a truly national spirit. Allusion is often made to the difficulties of our position, as compared with those of our *confrères* in Europe, who are surrounded by ancient examples of our art and by an appreciative public, trained to admire the monumental glories of the past. On the other hand, our opportunities are far greater than theirs, owing to the rapid increase of our population, to the accumulation of large fortunes, to the great variety of building materials, to the excellence of our mechanics, etc.; besides, which, the greatest freedom with us is allowed in design, uncontrolled, as we are, by precedents. Our individual responsibilities are also correspondingly greater, on account of the rapidity with which our work must be carried on, and the many new and complex problems daily presented for solution, such as extremely high buildings, etc.

Just here a word about the extreme height of buildings in our cities. Although the owners of land may claim that they own from China below to the heavens above, yet it cannot be denied that an excessively high building is an injury to surrounding property and detrimental to public health in the shutting out of the sun, light and air.

Legislation will undoubtedly, at no distant day, regulate the height of buildings relatively to the width of the streets, as is the case in most of the European cities.

The difficulties and responsibilities of our profession are great indeed, and ever increasing, but our opportunity is likewise great, and ever improving with the growing culture of our people. For centuries no fairer field has been offered for the display of true architectural talent; it only depends on the well-trained student to seize the opportunity. And permit me here to add, for the benefit more especially of the younger members, that eminence in our profession can alone be gained by a thorough study of the works of the past — there is no short road to glory — and I consider it as essential for the architectural student to thoroughly acquaint himself with Classic architecture as it is for the literary man to be conversant with the Classic authors.

But a short time has elapsed since a man of uncommon genius was taken from us. His vigorous works were universally admired, and he naturally had many followers: a large number but feeble imitators, others well grounded in Classic architecture. On the latter alone can we depend for truly good work in the style of Richardson, who, it should be remembered, had a thorough Classic training.

In conclusion, I regret to state that Congress still remains indifferent to the just appeal of Mr. Walter's family; that it has failed to pass the "Bill to Establish a National Art Commission," and that in the Architectural Department of the Treasury Department, in Washington, are still prepared the designs of the public buildings of the nation.

These matters, more fully alluded to in a former address, together with others, such as the advisability of appealing to Congress to resume the tests of building materials, formerly made by the National Government; also, as to the advisability of some formal action being taken by the Institute in acknowledgment of the great benefits conferred on followers of our craft, such as the establishment of schools, the founding of scholarships and prizes, important donations, etc., deserve our earnest consideration.

It remains only for me to thank you for your patient attention, for your many expressions of kindness, and for the earnest support that you have ever shown me.

Let us, one and all, work with ever-increasing zeal in behalf of the Institute, and may our efforts be crowned with signal success.

Chicago's new Public Library building is to cost $1,200,000 and to have a capacity for 2,000,000 volumes. The sum of $5,000 has been appropriated to pay architects for designs. Five firms, three in Chicago and one each in New York and Boston, will be invited to furnish drawings, and for this work each firm will receive $1,000. Other architects may compete if they choose, but compensation in their cases will not be guaranteed. The building must be a masonry structure, four stories in height and of a Classic order of architecture, without dome or tower, the material either granite or Bedford bluestone. The site is on Michigan Avenue, between Washington and Randolph Streets. The committee in charge of the undertaking promises that the exterior of the building will be ready for public inspection when the World's Fair opens. — *N. Y. Evening Post.*

TWENTY-FIFTH ANNUAL CONVENTION OF THE AMERICAN INSTITUTE OF ARCHITECTS.

THE CLOSING SESSION.

The closing session of the Twenty-fifth Annual Convention on Friday morning was, like similar closing sessions, almost wholly devoted to routine business details, the chief of which was the election of officers for the ensuing year, which resulted as follows:

President, E. H. Kendall of New York; Secretary, D. Adler of Chicago; Treasurer, S. A. Treat of Chicago; First Vice-president, Alfred Stone of Providence, R. I.; Second Vice-president, E. C. Cabot of Boston; Directors for Three Years, R. M. Hunt of New York, C. F. McKim of New York, E. M. Wheelwright of Boston, W. W. Carlin of Buffalo, J. W. McLaughlin of Cincinnati, S. S. Beman of Chicago, W. S. Eames of St. Louis, W. C. Smith of Nashville; Directors for One Year, H. J. Hardenburgh of New York, W. L. B. Jenney of Chicago, A. W. Longfellow of Boston, Cass Gilbert of St. Paul.

As the place for the next meeting, Pittsburgh was suggested, and by way of novelty a definite date was named, the day selected being the twelfth of October — a much better time of year than has been fixed on for the last three conventions. Both of these matters were as usual left to the discretion of the Directors.

In addition to the usual formal "votes of thanks" several resolutions were adopted, the most widely interesting of which was offered by J. G. Cutler of Rochester, N. Y., and adopted:

"*Resolved*, That it is the sense of this meeting that a convention or congress of architects should be arranged to take place in Chicago during the World's Fair; and that the arrangements for such meetings shall be made by a committee on foreign correspondence of five, as follows:

"R. M. Hunt, New York; W. L. B. Jenney, Chicago; D. Adler, Chicago; C. F. McKim, New York; Henry Van Brunt, Kansas City."

This action and the resolution of Mr. Shipman, endorsing the action of the Illinois Chapter in taking steps to secure a proper architectural exhibit at the World's Fair in 1893 should make it certain that the twenty-seventh convention of the Institute will prove the most interesting in its career.

To the list of Honorary Members elected the preceding day, were added the names of F. W. Chandler and Eugène Létang, professor and assistant-professor at the Massachusetts Institute of Technology and of Professor Charles Babcock of Cornell University.

The convention adjourned *sine die* about noon and the members who felt so inclined were driven through the suburbs under the escort of their entertainers.

The meetings have been brisk in manner, and yet nothing occurred in the slightest degree provocative of friction or even temporary unpleasantness. If the convention has not been one of the most important in its performances it has certainly been one of the pleasantest and the only cause for regret was that more members had not put in an appearance to increase the total amount of pleasure.

COMPARATIVE ARCHITECTURE.[1]

A CONTRIBUTION TOWARDS THE STUDY OF ARCHITECTURE.

Comparative architecture bears the same relation to historical architecture or the history of architecture as comparative ethnology does to general ethnology, or comparative anatomy does to general anatomy. Architecture is not a science; its laws cannot be predicated; it has a personal element, the imagination of the artist or of the architect, which is absent in the true sciences. But it is a subject that may be treated both descriptively and historically, and it is, therefore, possible to treat it comparatively. Few methods of study have added so much to human knowledge as the comparative. We live in a comparative age. We have comparative zoology, geology, physiology and multitudes of kindred subjects, that have opened new fields of culture, broadened knowledge, made us familiar with forms of life and natural laws which

[1] Abstract of a paper by Mr. Barr Ferree, read before the American Institute of Architects, Thursday, Oct. 29.

otherwise would have been neglected. Some of the most important results of recent learning have been achieved in comparative philology, and in every department that the comparative method has been applied to, fresh and important information and greater interest have been forthcoming.

Architecture is the least imaginative of the arts. It is concerned with practical questions, with materials, environment, climate, geology, products of the earth and many other circumstances which make it eminently useful, as they take it away from the artistic. But, while architecture is limited by these requirements, it is impossible to look for a law of architecture whereby results may be predicted.

The possibilities of neither the historical nor the descriptive methods have been exhausted, but the comparative will help to a clearer understanding of our present knowledge, and make future work more intelligible.

To suggest a definition: comparative architecture takes the facts of historical and descriptive architecture, and describes the comparative progress made by all nations under every condition. It takes the substance of the art, its materials, the climate in which characteristic styles have developed, the national or governmental conditions under which they have flourished, the ethnographic relations of the people, the geological peculiarities of architectural districts, the distinctive social and mental qualities, notes the influence of the allied arts, of religion, temperature, use, civilization, constructive ability and methods, and every cause which in one way or another, to a greater or less extent, has operated in the production and formation of architecture in all times and ages. It is independent of a definition of architecture: it does not matter if climate, country, nationality and other conditions are considered an integral part of the definition of the word or art of architecture. No architecture of any kind is possible without these influences or causes, though their effect may not always be visible, or visible to the same degree. It calls for no straining of definitions to make these things subjects of study, and they are, therefore, grouped under what, for want of a better name, I have called comparative architecture.

In a history of architecture composed on the old historical form, the author would arrange his subject in countries, and under each would, perhaps, note the effect of the various causes that have just been enumerated. The result would be a series of chapters, in which the reader would have to begin at the beginning each time, and note the influence of, for example, religion, materials, etc., in each country separately, without having a general idea of the actual manner in which materials, construction, religion, etc., have affected architecture as a whole.

In the comparative method, the chapters would be headed, not with names of countries, but with names of influences, as: materials, construction, religion, and the effects of each would be noted in their varying degrees in each country where architecture had flourished. No general view of the history of individual styles would be obtained by this means, such as the text-books now offer us; but comparative architecture is intended to supplement present work and present methods, not to take their places. Architecture is shown as a natural art, evolved under natural conditions, not a succession of historical facts with disquisitions on dates and problematic conjectures, nor a combination of descriptions giving the number of doors, windows, columns and square inches of ornament in every building under the sun. Comparative architecture does not concern itself with the history and description of styles, but with reasons for their existence.

We live in an age of inquiry. It is not sufficient to state facts, it is necessary to give reasons why and reasons that all can understand. Historical students deem nothing too insignificant for the illumining of the events they describe, and the most microscopic researches have often returned the richest results. Similar researches into the history of architecture cannot have other than beneficial results. Under the treatment here proposed architecture acquires a new meaning and purpose that it would never have had while viewed solely in the historical and descriptive manner. Styles, methods, results, variations are explained and their relationships. Reasons for the prevalency of certain forms under certain conditions are given and the art appears no longer as the products of the imagination, the creation of fancy, but the outcome of natural, reasonable, sensible, useful and at the same time beautiful conditions of different natures originating under different conditions.

The more closely the reasons of architecture are examined the less spontaneous it appears, the closer it approaches the domain of law, though without entering it. Ornament remains outside any such influence, and the personal element thoroughly prevents architecture from being regarded as a product of an evolution in the sense that a plant or an animal may be so regarded. But it is not entirely the result of personal whim, fancy, pleasure or imagination. The Assyrians did not build their immense vaults because they pleased them, but from the nature of their climate and the building materials at their hand. It is impossible to refer the production of a historical style to any one set of phenomena, it is not possible to get farther than general groups, but, notwithstanding their uncertainty, they show architecture to be a living, progressive, reasoning art, reflecting the deeds and nature of man with a fidelity surpassed by few records.

The influence the comparative method may have in extending popular interest in architecture is not the least important of its elements. The dull record of historical sequences, the detailed examination of styles and their characteristics, the warfares over nomenclatures, the strict chronological chronicling of buildings in all times and ages, will never give the animation to architectural study it so sadly and obviously needs. There is no greater evil in architectural study than isolation. Architectural students forget the coördinate relations of their art in its beauty and artistic merit. No just estimate of all the works of men can be possible which does not take into account their buildings, even though their æsthetic value is neglected. Yet historians of architecture do not hesitate to prepare essays in which the great historical events that have rendered the subjects of their discussions possible are ignored or scarcely referred to. A building is a thought, an idea, an intellectual product, and must be treated as such in every intelligent study. Viewed alone the greatest monuments are deprived of much of their value. The Parthenon, Nôtre Dame and other great buildings typify ages and intellectual movements as well as developments in construction and epochs in styles. It is not enough to describe them apart from their environment, nor can the men who built them and their intellectual and historical positions be passed over in a few words. It may seem formidable to say that the history of architecture is the history of humanity, and that one cannot be understood without the other, but is it well to continue in present lines if they are not sound or if they do not rest on firm foundations?

Architecture both as an art and as the science of construction suffers from a lack of popular interest. It is not popular as china-painting, decorative upholstery and other alleged arts are, and both painting and sculpture surpass it in general estimation and interest. It is not exaggeration to attribute much of this indifference to the dull prosing way in which writers on architecture have presented their subject. I am not without hope that the comparative method when properly handled by competent hands may introduce a change for the better. Clearly, if architecture is to become popular some new method must be adopted for its general treatment. People take an immense interest in many dull and far-away subjects. Lectures on psychology, political economy, even Hebrew and Assyrian are crowded with eager and appreciative audiences. Architecture is surely in more intimate touch with the masses than any of these. If the fault is not in the subject it must be in the methods.

Architecture is now almost the only form of knowledge that is not treated in a scientific manner and viewed as a reasonable product of reasoning minds. The comparative study of monuments now forms the basis of the best work of the most advanced archæologists. But their method is perhaps better to be called analytical, than comparative, but in no case does it go far enough. If important events can be ascertained by the analytical studies of coördinate groups of buildings it should not be less valuable or productive of less instructive and interesting results to apply the same method to buildings which are not so intimately related. All buildings are products of a human intellect and in a certain sense they all have the same end, that of fulfilling some of man's necessities. Architecture is eagerly seized as a subject of study when there is absolutely nothing else to learn of departed races, but when it is one of many forms of remains of past civilization it is viewed as an œsthetic art without due appreciation of its proper uses.

Modern architecture as well as ancient is a proper subject for comparative treatment. Architecture is limited by circumstances and conditions to-day as in the past; they are not the same conditions nor do they have the same results, but they still form legitimate subjects of study in the manner here proposed.

HISTORY OF PRISON ARCHITECTURE.[1]

IN presenting to you the conclusions respecting prison architecture which professional study and experience have led me to reach, I make no apology for considering this subject in connection with the subject of prison discipline, prison management and prison reform. I am well aware that I speak to men many of whom are so much

[1] A paper read by John R. Thomas, architect, of New York City, before the Annual Congress of the National Prison Association at Pittsburgh, Penn., Tuesday Evening, October 13, 1891.

more familiar than myself with most aspects of these latter subjects, that my proper relation to them, with regard to these aspects, is rather that of a learner than of a teacher. But it is true, not merely of prisons but of all works of architecture, that, in order to design a successful and satisfactory building, the architect must in the first place know what it is that is to be done in that building. It is not necessary that a church architect should be a theologian; but it is necessary that he should be familiar with the form of service in which theological beliefs have been embodied in any denomination, and with even the most minute requirements of that service, in order to provide for the worship of that denomination in the most advantageous, economical and impressive manner. Whether the ideas which have issued in these forms of worship are sound or unsound is not his affair, but that of his clients. So long as they are the accepted ideas, and as he knows what they are, or rather what the acts are to which they lead, he is in this respect equipped for his work, and not until then. And so with the planning and construction of prisons. A place of mere confinement is one thing, a place of mere punishment is another; a place which — while the prisoner is securely kept in it and while he undergoes, at the least, the great punishment of a privation of liberty — is also a place of education and a place of reform, in which a prime object is that he shall go out a better and more useful man than he came in; such a place has architectural requirements of its own which cannot be satisfied merely by the construction of a place in which prisoners are securely kept, or of a place in which they are certain to suffer. Now, while a prison of to-day must, more or less, include all these purposes, it may be said that the association which I address exists for the purpose of promoting the efficiency of the prison in its third character — not as a place of detention merely, not as a place of punishment merely, but as a place of reform.

The precedents of prison architecture, before the introduction of the reformatory, along with the penal element in punishment, are but of historical interest to us, and shed no light whatever upon the problems which prison architecture offers in the present time. To build a place in which it is certain that men shall be kept confined and certain that they shall suffer, is a task as simple as it is repulsive. All the prisons of antiquity, whether of Biblical or of Classic times, and all the prisons of the Middle Ages, fulfilled these elementary requirements. Of any of them the wretched prisoner, if perchance he escaped alive, might afterwards have said with the poet:

"I was cut off from hope in that sad place."

To say this is to show how widely our point of view differs from that of the men who constructed these gloomy places of confinement and of torture; for it is of the essence of prison reform that no convict serving a sentence for any term less than his life shall be permitted to feel that he is "cut off from hope." Next to the privation of life, and before the privation of liberty, comes the privation of light. The dark cell is the most frightful punishment for misbehavior in prison that the modern system affords. Nothing so surely breaks the spirit and undermines both the physical and the mental health of the convict, as such a confinement. Who that has read it can ever forget the awful account of an experience in the dark cell, given by that master of description, Charles Reade, in the novel "*Never Too Late to Mend*," which — fiction though it be — is one of the most impressive documents that ever have been prepared in the course of prison reform? When we consider that all the most typical prisons, of antiquity and of mediæval times, consisted either exclusively or largely of such cells, we can realize what hopeless and terrifying places they were. In great part they were subterranean. Confinement underground was very tempting to the authorities, and the more tempting to them because it was so terrible to the prisoner. It affords the easiest method of safe keeping. To lower a prisoner into a hole in the ground and then to withdraw the means by which he has descended, is to make sure that he shall not escape. In dark ages and in barbarous times, this device is the commonest expedient of prison architecture. Until far within the Christian era the experience of the prophet Jeremiah was repeated: "Then took they Jeremiah and cast him into the dungeon of Malchiah that was in the court of the prison; and they let down Jeremiah with cords, and in the dungeon there was no water but mire." For a cruel ruler and for a lazy and heartless jailer, such a dungeon was the perfection of a place of confinement. The prisoner could not escape, and while his sufferings were sure to be great enough to appease the utmost vindictiveness, and to make him long for death as the end of them, this last desperate hope could be defeated by lowering to him once a day food enough to keep him alive, while if this attention was forgotten it was no great matter. It would have been impossible to convince any ruler of antiquity or of the Middle Ages that such a place of confinement left anything to be desired. It was good enough for hardened offenders, and all offenders were supposed to be hardened. It was the triumph of the punitive theory of confinement. Plato, indeed, proposed a division of prisoners into classes and a differentiation of prisons according to the classification of the prisoners, — a classification into prisoners awaiting trial, prisoners guilty of minor offences, and prisoners guilty of serious offences against society. As Dr. Wines has said, this classification very nearly corresponds to our modern classification into the prison of detention, the county jail or the district prison, and the State prison. For the second prison, the prison for minor offenders, was distinctly meant in Plato's view, to be also a reformatory — "a place for teaching wisdom and continence." But Plato was a theorist, a visionary, a "literary feller," and for nearly two thousand years no ruler attempted to put his theory into practice. The prisons of Greece and of Rome were places of darkness, and silence, and suffering. There are remains of the Mamertine prison in Rome — the oldest building, antiquarians say, in the Eternal City — from which we may still derive enough of the Roman theory and practice of prison discipline to shudder at. The upper prison was itself subterranean, and received light and air only from a hole in the arched ceiling. It was an irregular four-sided room, some thirty feet on the longest side and eighteen on the shortest, with thick walls of stone, in part cut in the tufa rock of the Capitoline hill, and in part built up in masonry of two-foot blocks of tufa — a gloomy and a hopeless place of confinement. But there was still a lower deep — the "*inferior carcer*," of which Livy speaks; the "*Tullianum*" of Sallust. This was a circular well twenty feet in diameter and six in depth, sunk below the floor of the prison proper, and accessible only through a hole in that floor. This was the dungeon of classical Rome and it was here, in this "pit," as Plutarch calls it, — this "ice bath," as it was called by the wretched Jugurtha, who was to perish in it, that prisoners of State were killed or starved to death. Of such a place we may well accept the horrifying description of Sallust, more horrifying for its business-like brevity: "There is in the prison a place called the *Tullianum*. It is enclosed on all sides by walls, and above by a ceiling arched in stone, but it is uncleaned, dark, sickening to smell and frightful to see." Such was the State prison of the Roman republic, and like unto it were all the places of punishment that succeeded it to the end of the Middle Ages. The "dungeon beneath the castle moat" was considered by the feudal lords quite good enough for their prisoners who were also their enemies. Indeed, throughout the whole mediæval period, a public prison, in the modern sense of the word, can scarcely be said to have existed. The mediæval prison was a place of confinement not for malefactors, but for the King's enemies, for political prisoners as we would say, whom it would not do to put to death or to set at liberty. Such for many generations was the Tower of London. Criminals were put to death for what we now regard as minor offences; for what were then thought so, they were branded, or flogged, or pilloried, and then let go. Indeed, it is not exaggerating to say there was no prison architecture in the sense in which we use that term.

It is worthy of notice that the triple division of prisons prevails in China, all the institutions of which are interesting to us, both on account of their exclusively domestic development, unaffected by the outside world, and on account of their immemorial antiquity. The three classes of prisons are known as the great, the inferior and the police prisons. The great prison is designed for such as are guilty of grave crimes. It is always situated within the enclosure of the official residence, and is surrounded by a high wall, of which the only entrance is through the keepers' room. The wall of the prison is inside of this enclosing wall and six feet distant from it, the interval being filled with a paved alley. This alley completely surrounds the prison and doorways lead from it to the wards. In the prison Nun-hai there are five of these wards, four for men and one for women. Each ward consists of an open quadrangle with rooms for prisoners on the east and west sides, and on the north an altar or temple for an idol. The quadrangle is paved with stone and is forty or fifty feet long by twenty wide. In the centre of it is a roof supported on four posts. The prisoners' rooms are faced with palisades, preventing their escape but admitting light and air. In the day-time the prisoners are allowed to walk in the open space, but at night are confined in their rooms. The inferior prisons, intended for minor offenders, are similar in arrangement to the wards of the great prisons, but on a larger scale. The central area is about a hundred feet square, and is faced with rooms on three sides. The place of the idol is at one side of the covered partition in the centre. The police prisons are not planned or built for their purpose, but are rooms in ordinary Chinese houses, small, dark and close.

It was not until the modern idea of prison discipline began to prevail, that a modern prison could be constructed, and this was when the idea of reform began to be connected with the idea of punishment. On the other hand, as there can be no prison architecture that does not proceed from some theory of prison discipline, so there can be no theory of prison discipline that can be completely put into practice without a prison that is planned for that purpose. It is not without significance that the pioneer of prison reform in England — the immortal Howard — should have begun his work on "*The State of Prisons*" with an account and illustrations of a new plan for a county-jail building. So true is it that the reform of the prison itself is the beginning of prison reform. Nor is it less significant that the first practical prison reformer, I mean Pope Clement the Eleventh, should have begun his reform with a building. There are two buildings in Rome which illustrate respectively the old and the new theories of prison discipline, and they are but half a century apart in the dates of their erection. Each is the work of a Pope, and each bears an inscription testifying its founder's purpose. The first is the "new prison" of Pope Innocent the Tenth, built in 1655, and the tablet built over its entrance sets forth that it was erected "*Securiori ac meliori reorum custodiæ*" — "for the safer and better keeping of criminals." The second is called no longer a prison but a "*casa di correzione*," "a house of correction," and the inscription upon its front declares that it is devoted "*Perditis adolescentibus instituendisque*," "to the correction and instruction of erring youths," and

inside is inscribed what Howard calls "this admirable sentence" — "*Parum est coercere improbos pœna nisi probos efficias diciplina*," "It is not enough to restrain the wicked by punishment unless you also make them good by instruction." This, inscribed at the beginning of the eighteenth century, remains the motto of prison reform at the end of the nineteenth.

This great reform has made its way very slowly. It was in 1704 that the reformatory of Saint Michael, the "House of Correction" I have just mentioned, with its noble motto, was founded, and it was planned upon the principle which has now come to be accepted, perhaps by a majority of prison reformers, as the true principle of prison discipline. It is what we know now as the "Auburn System" — the system of associated labor by day and separate confinement at night. A placard bearing the word "*Silentium*" was hung in the principal work-room, and the plan of the prison given by Howard shows that the sleeping-cells were arranged much in the modern fashion. On each side of the ward, against the exterior wall, were three tiers of cells, lighted by small windows from outside and opening upon narrow galleries, which in turn looked out upon a central court. The planning of this prison was as far in advance of its age as the ideas of its papal founder. That erring youth could be reclaimed, but that they could be reclaimed only through discipline, obedience and productive industry was evidently Pope Innocent's view, and it is the view of the prison reformers of to-day. But the nations were very slow to follow this noble example. There was no desire for prison reform among the statesmen of Europe, no thought that criminals could be reformed or that prisons should be improved, and therefore no curiosity about what might be doing in that direction in other countries than their own. It was not until 1777, or seventy-three years after this first model prison had been established, that notice of it was given to Europe by the publication of Howard's book on "*The State of Prisons*," the fruit of observations taken through much hardship and privation, and extending over years. Of this work nothing better can be said than was said by Edmund Burke in his eulogy of the author: "I cannot name this gentleman without remarking that his labors and writings have done much to open the eyes and hearts of mankind. He has visited all Europe — not to survey the sumptuousness of palaces or the stateliness of temples, not to make accurate measurements of the remains of ancient grandeur, nor to form a scale of the curiosity of modern art, not to collect medals or collate manuscripts — but to dive into the depths of dungeons, to plunge into the infection of hospitals, to survey the mansions of sorrow and pain, to take the gauge and dimensions of misery, depression and contempt, to remember the forgotten, to attend to the neglected, to visit the forsaken, and to compare and collate the distresses of all men in all countries. His plan is original, and it is as full of genius as it is of humanity. It was a voyage of discovery, a circumnavigation of charity. Already the benefit of his labor is felt more or less in every country. I hope he will anticipate his final reward by seeing all its effects fully realized in his own."

The hope was not fulfilled, for it was long after Howard's death before any practical steps towards reform were taken in the British islands. He had set before his countrymen not only the Italian example, which was the earliest, but also examples of reformatories in the Netherlands, which were and for many years remained very far in advance of anything of which England could boast. The House of Correction at Amsterdam, when Howard visited it, was a large double quadrangle faced with a three-story building, and with lower buildings dividing the courts, of which there were four — two for women and two for men. The Maison de Force at Ghent, is planned in a still more modern fashion, being an octagon, — of which but half was built when Howard visited it — and having courts divided by blocks of cells and diverging from a central point, at which the guard-rooms were established, so that the occupants of these could at all times keep the prisoners under observation. The division provided not only for a complete separation of the sexes, but for a separation of criminals of either sex from vagrants — and evidently gave opportunity for an extensive diversification of labor. It was mainly in the introduction of productive labor that the prison reforms of the Continent consisted, and the slowness with which this element, which we recognize as of the very first importance, found its way to England, is astonishing. Howard himself attached the utmost importance to it as a reformatory agency, but he found great difficulty in introducing it, by reason of a curious prejudice which he felt compelled to treat very gingerly. This was the notion, as he states it: "That compelling prisoners to work, especially in public, was inconsistent with the principle of English liberty." This he combats by showing that enforced industry played the largest part in the prisons of the freest States, and by observing upon the inconsistency of the solicitude lest a man whose "liberty" had already been lawfully taken away should be set to work, with the absence of any solicitude lest he should die of jail fever.

Sir Joshua Jebb has been called by a British authority the author and originator of modern prison architecture, on account of his superintendence of the erection of Pentonville Prison, begun in 1840, which was the model for no fewer than fifty-four British prisons built within six years afterwards. But we may justly claim that the impulse to this development came from this country. It was the report of Mr. Crawford in 1834 upon the American prisons that induced Great Britain to adopt the Pennsylvania system, afterwards modified by the introduction of some features of the Auburn system. For this system new prisons were absolutely indispensable, and new prisons, consisting almost exclusively of cells, prevented the introduction of associated labor to the extent that experience proved to be desirable. So true is it that prison discipline and prison architecture react on each other, and that prison reform must begin with the prison and not with the prisoner.

There is now no occasion to argue against enforced labor in prisons, except with a certain class of politicians who fear that this labor is or may become too valuable or productive! Enforced industry is the basis of all our attempts at reforming prisoners. As Dr. Wines has said: "That prison is most reformatory where labor is most productive"; but unproductive industry, if it be systematic, is far better than none. By this I do not mean purely penal labor, such as the treadmill, the crank, or the pump by which, in some prisons, a convict has been compelled to empty the water constantly poured into his cell, under penalty of death by drowning: I mean work which, though unproductive is yet interesting, and which employs the mind as well as the hands. Literary education is, to a considerable extent, a security against criminal courses; but it is a much less effective preventive than industrial education. A man who is master of a trade by which he can maintain himself is very seldom found on the wrong side of the prison-wall, while a man who is forced to acquire such a trade for the first time in prison leaves the place, in the important respect of an ability to earn his own living, a better and more independent and more valuable citizen than when he entered it. No prison can be a reformatory which is not in a large degree a workshop, nor in which the plan does not provide for the industrial needs of the inmates. The first prison in England, the construction of which was instigated by Howard's exposure of the existing system, was the Penitentiary at Gloucester, and in that industrial needs were attempted to be answered by the provision of two cells for each prisoner, one to sleep in and one to work in. But this arrangement partakes altogether too much of the completely "separate and silent" system — the Pennsylvania system — which may be said to have broken down utterly in practice, by reason of its ruinous effects upon the bodily and mental condition of the wretched convicts who are subjected to it, and to have been all but entirely abandoned, insomuch that in but one American prison is it retained. It has been abandoned in favor of the system that provides for associated labor by day and separation at night, a separation which should in all cases amount to complete isolation. That is to say, the life of a prisoner should be divided, on the secular days of the week, between his cell and his work, and of cells and workshops or trade-schools a modern prison must therefore in the main consist. This statement refers primarily, of course, to the convict prison, which is incidentally a reformatory, and not to the reformatory of juvenile delinquents, or of first offenders, though it is in great part applicable to that, also, to the county jail, and to every place of confinement that is not merely a place of detention, which is not, properly speaking, a prison at all, since its purpose is neither to punish nor to reform. As might be expected, the most thorough classification and subdivision of penal institutions exists in France where are prisons of detention, prisons of correction for prisoners sentenced for short terms, and convict prisons proper. Of all these, La Santé, the model prison of Paris, is the most important.

This edifice cost over a million dollars and occupies seven and one-half acres of ground. It is built in the form of a trapezium — and is quite separated from all other buildings. It forms, in fact, two distinct prisons — built on two distinct plans — and designed for two distinct classes of prisoners. One part is for prisoners awaiting trial; — this is on the cellular plan and has accommodations for five hundred inmates: the other is for convicted prisoners sentenced to correctional imprisonment, for terms not exceeding a year. This is on the associated plan and is designed in like manner for five hundred inmates. It consists of common halls, common eating-rooms, common workshops and separate sleeping-cells; each cell is twelve feet long, six feet wide and nine feet high, and the ventilation perfect. There are many ingenious contrivances for overcoming difficulties and securing practical advantages. For example, the altar in the chapel, which is in the central rotunda, is so placed that the officiating priest can be seen by every prisoner in the four wings of the cellular ward, the door of each cell being set a few inches ajar and securely locked at that angle. At the same time the folding-doors of the partition between the two prisons are thrown open so that every prisoner in each has a full view of the ministrant.

The first and one of the most important steps towards the construction of a modern reformatory prison is the selection of the site, and at this stage expert advice and assistance are as necessary as at any other. The prison should be situated with due regard to the sewerage, to water-supply, to the transportation of manufacturing materials and of finished products, and also with regard to the facility of procuring instructors from the community nearest at hand. This means that it should be near a centre of population, but far enough removed to permit of the purchase of a large tract of land. The inclosure should be large enough to supply ample grounds for the buildings usually provided, but these are not enough. The modern reformatory must have school-rooms, lecture-halls and recitation-room, sufficient for any school of similar numbers. There must be buildings for instruction in many of the trades now carried on in the free society into which these men must go and be rehabilitated. The modern reformatory must be also a great workshop, unless the public sentiment (when it settles) prefers to pay the expense of

maintaining the prisoners without any earnings of their own; if manufacturing is to be carried on there should be ample factories for this purpose, separate and apart from the trade-school buildings. The enclosure should be large enough to supply ample grounds for military drill and parade. It seems to me that the military drills which were recently introduced at the Elmira Reformatory might be made a valuable part of the discipline of a reformatory prison. At all events, where productive labor is forbidden, such drill supplies an invaluable means of securing systematic and orderly employment. While the dietary of reformatory prisons must be simple and inexpensive, there must, nevertheless, be provided spacious buildings and appointments for cooking, eating and serving. The buildings must include a bakery and a laundry and near these should be the tailors' and shoemakers' shops, and store-rooms for clothing and for all stores except, perhaps, provisions. A large amount of office-room is needed. In the Elmira Reformatory the amount of floor-space devoted to strictly office-work within the prison proper is forty-one hundred square feet. The recent experiments in the reformatory treatment of "defectives" demonstrate the desirableness for any well-appointed reformatory of a building with an exercising-hall and apparatus for physical training.

The quarters for subordinate officers should be within the enclosure, to the end that their going and coming may be surely noted. The living quarters for the general officers should be far enough away to avoid annoyances to their families, yet near enough for easy access to the building itself.

In this connection, and by way of illustration, I give a short description of a State Reformatory about to be erected, which is designed so that it may be extended in the future, the present plan being the foundation or nucleus for a complete reformatory prison.

The general plan may be called cruciform, although the head of the cross is outside the prison proper, and contains only the executive building. At the intersection of the cross occurs, on the principal floor, the guard-room, the arms of the cross being blocks of cells, each block planned to contain two hundred and fifty-six cells and two hundred and fifty-six prisoners. The chapel is over the guard-room and is reached by staircases from each cell-wing. The foot of the cross is a building of three stories, with a cellar for the storage of vegetables. The first story, on a level with the prisoners' dining-hall in the basement of the front building, contains the prisoners' or main kitchen, officers' kitchen, grocery store-room, heavy grocery store-room, meat-room, refrigerator-room, bakery, bread-room, flour store-room, general stores, and laundry. In the second story, on a level and connected with the guard-room, will be the officers' dining-room, sitting-room and appurtenances, six school-rooms, receiving-room for inmates, with bath, clothes-room and tailor-shop. In the third story will be the officers' assembly and reading-room and sleeping-chambers. At the rear is a shoe-shop, with a separate outside entrance.

The dwellings of the warden and his deputy are detached from the prison and in front of it. The prisoners' dining-room is under the guard-room, and thus easily accessible from both blocks of cells. A chief peculiarity of the plan is that, in order to provide for a possible future extension, the foot of the cross, just below the intersection occupied by the guard-room, is narrowed to a mere passage, and at this point there can be built, diagonally to the intersection, two additional cell-wings equal in capacity to the blocks already provided for, and equally commanded from the guard-room, so that from this central point the whole system of over one thousand cells can be effectually observed and controlled. The trade-schools and the factories are in separate buildings, towards the rear of the enclosure. The dungeon-cells are in an L projected from one of the cell-wings.

The buildings are to be constructed of stock hard-burned brick, laid in the best quality of cement mortar, in a very substantial manner, with a minimum amount of ornamentation. The roofs are to be of slate. The guard-room, the cells and the corridors connected therewith will be fireproof.

The yard wall is to be constructed with three entrance gateways, and a watch-tower at each of the four corners. In this enclosure, in addition to the buildings already named, will be a building for the electric-light plant, heating and power boilers, etc.

The entire buildings are to be heated with steam, with a complete system of ventilation.

All of the buildings named and the yard wall, it is estimated, will cost three hundred and ninety thousand dollars ($390,000), if built without the aid of prison labor, but it is believed that the yard wall can be built entirely by prison labor, and that the common laborers' work upon the building can be done by prisoners, in which case it seems reasonable to assume that the cost can be brought to three hundred thousand dollars.

A State prison for the more hardened criminals, the incorrigibles, should have the same care bestowed in the selection of its site as in the case of a strictly reformatory prison. The first requirement of every prison is an abundant supply of pure water and fresh air. Without this no convict can be maintained in bodily or in mental health, and we have no more right to poison the air for a prisoner or to permit it to be poisoned, than we have to poison his food or drink. The commonest of all the defects that Howard noted in his "circumnavigation of charity" was the foul odor that denotes a neglect of ventilation and sanitation. Great advances have been made in these things since his time, and the prisoner should receive the full benefit of them. There are many devices available for ventilation, the exhaust fan, a system of flues and ducts where the air is rarefied by means of steam-pipes. Whatever system is adopted, ventilation should never be procured by underground ducts, which give opportunities for prisoners to escape and which afford a lodging and breeding place for vermin.

The sanitary arrangements must be complete and perfect. With regard to the cells they have two requirements, of about equal importance — perfect security and perfect separation. These and their corridors at least should be absolutely fireproof. It is desirable, of course, that all of the buildings should be fireproof, but the increased expense would in most cases prevent this. Four tiers of cells is a maximum height and the smallest cell should contain certainly not less than three hundred and fifty cubic feet of air, and of course, except in special cases, there should be but one prisoner in a cell. This requirement of cells is almost universally violated. The average size of cells in this country is four-and-one-half by eight feet and eight feet in height, which gives too little air for the health of the occupants, while the cells in Sing Sing are but half of even this inadequate size, and those of some Canadian prisons are yet considerably smaller. For security, partitions of metal are, perhaps, better than those of masonry, but they are more costly, and they have the disadvantage that unruly prisoners can make night hideous by pounding upon them without being identified, as happened in the Cincinnati jail where this material was employed. The ideal construction would, perhaps, be a brick partition, floor and ceiling, enclosing a sheet of boiler-iron. The dungeon-cells in the Elmira Reformatory are constructed with double sheets of metal, a few inches apart, the interval being filled with cement. These cells have also the peculiarity of being in form truncated triangles, with the door at the truncation, so that every part of the cell is visible from the doorway, and that a malicious prisoner cannot lie in wait when the door is opened. In a large prison it would be well to arrange a narrow passage through the centre of each block of cells with a "spy-hole" at the back of each cell, which could be used by the guard, and the central space could also be used for the pipes of the ventilating, heating and sanitary systems.

It is not to be denied that our best prisons might be better, while it may be doubted whether our worst could be worse. The county jails of many parts of our country are not only disgraceful to civilization; they would be disgraceful to barbarism. Some of them contain almost every abuse which Howard denounced in the prisons of his own time. They are as foul, as unwholesome, as prolific nurseries of disease and as effective schools of crime, as if he had never lived and labored, and prison reform had never been considered. Here is still an almost untilled field for that reform. In order to cultivate it, not only public opinion but State authority, should be brought to bear upon the ignorance or the apathy of local boards, and the aid of experts in prison architecture should be invoked in these obscure institutions as well as in the more conspicuous prisons of the State. It is doubtful whether more good would not result in any State from the construction of a county jail which should be imposed as a model upon all the counties, than from the establishment in that State of a model convict prison and a model reformatory. It is because they are inconspicuous and obscure that these jails are so liable to abuses. "The dark places of the earth are full of horrible cruelty."

With regard to the prison considered as a work of architectural art, it may be said, as with regard to all other buildings, that its purpose should dictate its expression. The requirements call for massive walls. The expression of such a wall must be severe. An "elegant" prison, an "ornate" prison is as inconsistent with artistic architecture as it is with common-sense. The front of Newgate, highly praised by an historian of modern architecture, consists of two enormous masses of wall, relieved only with two simple entrances, flanking a centre which is the keeper's residence, and which is itself severely plain. The distinction between the different parts, and the straightforward expression of the structure will give all the relief and variety that are appropriate to such a building. We want no prisons that can be mistaken for palaces. The exterior should express the arrangement and purpose, and confirm to the character of the interior. If it does this unmistakably and forcibly the prison will be a work of architectural art. It should be dignified by reason of its magnitude, its proportions and its outline, massive by the expression of its construction, and severely plain. Above all, it should not show that the ill-judged ambition of its constructors has outrun the resources at their command, nor incur that reproach of Shakespeare's:

> Like one that draws the model of a house
> Beyond his power to build it; who, half through,
> Gives o'er, and leaves his part — created cost
> A naked subject to the weeping clouds
> And waste for churlish winter's tyranny.

SOCIETIES

ENGINEERING ASSOCIATION OF THE SOUTH.

THE first regular meeting of the Engineering Association of the South since the summer recess was held on Thursday evening, October 8, in the Young Men's Christian Association Building, Nashville, Tenn.

The subject of the series of tests of American woods, recently inaugurated by the Department of Agriculture, and now being carried out at St. Louis, Mo., and Ann Arbor, Mich., was discussed, and, at the suggestion of Mr. John MacLeod, of Louisville, Ky., the Secretary was instructed to communicate with the Secretary of Agriculture, expressing the interest taken by the Association in this important undertaking, and urging that the necessary appropriation of funds be secured for fully carrying out the series now undertaken.

The paper of the evening, entitled "The Estimation and Measurement of Earth-work," was then read by Mr. W. B. Ross, of Nashville, Tenn., member of the Association. The paper, after a general analysis of the requirements and difficulties of earthwork estimation, presented a comparison of the several methods now in use for determining volumes, expressing the error of the several methods as compared with the geometrically rigorous prismoidal formula. One of the conclusions of the paper was that, owing to the fact that earthwork excavations are usually bounded by a concave profile, either in the road-bed cuts or in borrow pits, the prismoidal formula gives results less than the actual volume taken out by an amount approximating to the error of excess of the method of "averaging end areas," and, therefore, the latter was believed to be the more accurate and just measurement of estimation than the prismoidal method, which, while giving results rigorously true for the imaginary solid on which it is supposed to be applied, still gives results too small when applied to the usual form of earth solid, which is rarely a prism, but usually has a middle section larger than that assigned it in the prismoidal treatment.

The author presented for inspection some tables devised by himself for rapidly taking out the volumes of "three-level" ground, and also exhibited some graphical scales for the same purpose, and to be used in finding the centre of mass of an excavation.

THE T-SQUARE CLUB OF PHILADELPHIA.

THE opening meeting of the "T-Square Club for the season of 1891–92, was held last week, when these officers were elected for the ensuing year: President, John Stewardson; Vice-President, Frank E. Mead; Secretary, C. Barton Keen; Treasurer, Albert Kelsey; Executive Committee, Frank Miles Day, Wilson Eyre and Frank A. Hays.

PHILADELPHIA, PA., October 12, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs, — I send you an account of the competition of the T-Square Club, held October 7, 1891.

Subject of the competition was "Sketches from Nature," made during the present year.

A large amount of interest was aroused among the members of the Club, two hundred and fifty drawings being sent in, filling the largest gallery of the New York National Academy of Design.

I enclose Report of the Jury, giving all further information.

Yours very truly, C. BARTON KEEN,
Secretary.

REPORT OF JURY.

FRANK A. HAYS, ESQ., PRESIDENT PHILADELPHIA T-SQUARE CLUB: —

Dear Sir, — The Committee selected by the T-Square Club of Philadelphia to award the prizes for summer sketches begs to submit the following report:

The Committee found the general standard of work, considered as the production of architectural draughtsmen in their leisure hours, gratifyingly high. Some of the work is very commendable, and almost all shows serious effort. There is, perhaps, too much tendency to impressionistic and picturesque method, and too little accurate and delicate study of form, though some of the drawings of architectural detail are very good. The figure drawing is quite insufficient.

In awarding the gold medal for the "best general exhibition," it was found that few of the exhibitors had work in all three mediums (water-color, pen-and-ink and pencil and crayon), and none of them showed sufficient skill in all to merit the medal on that ground. It was, therefore, decided to award the medal for general artistic merit and skill, and versatility in subject matter as well as in material, and on this ground the gold medal is awarded to Mr. J. J. Bissinger, whose pen-and-pencil sketches of animals and of architectural detail are admirable. His animals are especially vigorous and truthful.

The silver medal for the best water-color sketch the Committee had no difficulty in awarding to Mr. E. Boggs, whose drawings show a breadth of handling and justness of tone unapproached by the other exhibitors.

The silver medal for the best pen-and-ink sketch is awarded to Mr. Frank A. Hays, whose work shows much delicacy and feeling for line, and, with the bolder work of Mr. Bissinger, is the best in the exhibition.

The silver medal for the best pencil or crayon sketch is awarded to Mr. Charles Klauder for a graceful and charming drawing, excellent in technique and in expression of air and distance, as well as of form. Mr. Klauder also deserves mention for the somewhat timid but delicate and truthful water-color drawing of landscape.

All of which the Committee respectfully submits.

KENYON COX.
STANFORD WHITE.

THE ILLUSTRATIONS

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

HOUSE OF J. HAMPDEN ROBB, ESQ., PARK AVE. AND 35TH ST., NEW YORK, N. Y. MESSRS. MCKIM, MEAD & WHITE, ARCHITECTS, NEW YORK, N. Y.

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

A NON-ACCEPTED DESIGN FOR TOWN-HALL, UNION HILL, N. J. MESSRS. WILMINGTON & PASCO, ARCHITECTS, NEW YORK, N. Y.

THE site for the town-hall is at the corner of Berganine and Palisades Avenues, now occupied by an old fire-house.

The building, as stipulated in the programme, was to cost eighty thousand dollars, to comprise administrative departments, jail and engine-house.

This building would cost, as shown per estimate, a trifle less than appropriation, when built of buff brick with bluestone trimmings.

The main entrance is on Berganine Avenue, giving access to offices on first floor and to library and court-room on second. Engine-house entrance is also on Berganine Avenue. The entrance to jail is on Palisade Avenue, entering through gates into court-yard, from thence to jail or police-department; another entrance to jail is from court-room on second floor by means of a bridge. The main building is, from necessity, kept very simple, excepting such parts which seem highly essential.

EQUITABLE BUILDING, DENVER, COLO. MESSRS. ANDREWS, JAQUES AND RANTOUL, ARCHITECTS, BOSTON, MASS.

THE drawing here reproduced was hung at the exhibition of architectural drawing at Boston, which closes to-day. It may be of interest to point out that the owners of the building, the great insurance company, assented to and bore the cost of the interesting and useful series of experiments with fireproof arches a year ago, of which a full account may be found in the *American Architect* for March 28, 1891.

THE SNELL, HEITSU & WOODARD BUILDING, PORTLAND, ORE. MR. I. HODGSON, JR., ARCHITECT, PORTLAND, ORE.

NEW PAVILION OF THE GRAND HOTEL, SAN FRANCISCO, CAL. MESSRS. SHEA & SHEA, ARCHITECTS, SAN FRANCISCO, CAL.

[Additional Illustrations in the International Edition.]

HOUSE ON THE LARGO DEL GIARDINI, TRIESTE, AUSTRIA. SIG. TITO BULLO, ARCHITECT.

[Gelatine Print.]

DOOR OF THE TRANSEPT OF ST. MACLOU, ROUEN, FRANCE. AFTER A DRAWING BY M. MARIUS PAULME, ARCHITECT.

[Photogravure.]

THE beautiful drawings of one of Jean Goujon's masterpieces which are here reproduced were exhibited at this year's *Salon*.

DOOR OF THE TRANSEPT OF ST. MACLOU, ROUEN, FRANCE.

[Photogravure.]

DESIGN FOR THE COMPLETION OF SOUTH KENSINGTON MUSEUM. PERSPECTIVE VIEW. MR. JOHN BELCHER, ARCHITECT.

THE SAME: ELEVATIONS ON EXHIBITION ROAD AND ON CROMWELL ROAD.

THE SAME: PLANS OF GROUND AND FIRST FLOORS.

THE SAME: VIEW ON THE STAIRCASE.

COMMUNICATIONS

[*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.*]

A QUESTION OF COMMISSION.

ROCHESTER, N. Y.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Will you kindly give us your opinion and advice on the following:

We are the architects for some frame shed buildings to be erected over a manufacturing plant. There are five buildings all connected under one roof, but each one a duplicate of the adjoining one, that is, the plans, specifications, etc., for one may be used for the other

four. The work called for special and unusual materials and construction on account of the destructive nature of the fumes and vapors of the manufactory, and required special study, research and time on our part. We made a complete set of everything required for obtaining bids, and handed it in. We were then ordered to make another complete set, using ordinary construction and materials. This we also did. The *estimated* cost of *one* shed by the first method was $6,000, or, say $25,000 for all five. The estimated cost of one shed by the second method was $4,000, or $19,000 for all five.

In the absence of any agreement beforehand as to our commissions, and in view of the fact that we are asked for our bill for services (for working-drawings, specifications and details, and time spent in travelling out of the city to the site) *without* superintendence, will you kindly say what you consider a usual and proper percentage for the architect's commissions under the circumstances. We are informed by the owners that they are going to erect all five buildings *at once*, but evidently think they can do all the rest without our assistance.

In what relation do we stand to the work, and what authority have we, if any, during the progress of the work from this time on?

If this is too late for this week's issue, an expression of opinion by mail from you, would be of great assistance to us.

Very respectfully yours, Architects.

[If the work was of no unusual difficulty, we should say that five per cent on $25,000, or $1,250, would be a reasonable compensation for the two sets of drawings and specifications. Strictly, the buildings being separate, and two independent sets of drawings having been made, you might claim for each building the extra price for buildings costing less than $10,000, and might also claim the full seven-tenths of the entire commission for each set of drawings; but the second set would not need so much time and study as the first, and we suppose that you wish to make your bill as moderate as you reasonably can, and keep your clients. Unless you have full superintendence, wash your hands entirely of the whole affair, from the moment you deliver the drawings; take from the owners a full release of all responsibility, and never go near the work. To take a partial supervision is to have one's work botched *ad libitum*, and to be held responsible, often in heavy damages, for all the results of other peoples' mistakes and interference with your intentions. —Eds. American Architect.]

NOTES AND CLIPPINGS

The Disposal of Sewage in German Towns. — The disposal of sewage is a question which has been to the fore for a good many years in various countries, but which, perhaps, nowhere on the Continent has been dealt with in a more systematic manner than in Germany. In Berlin the drains from the houses receive both the rainwater, the dirty water from the kitchen, etc., and the contents of the water-closets, conducting them to a system of radial sewers, through which they, by a natural fall, proceed to a dozen various pumping-stations within the area of the town. From these the sewage, through the medium of combined force and suction pumps, passes through pipes of three feet, or still greater diameter to the land, which the corporation of Berlin possesses, and where the sewage is used as a fertilizer. The sewage makes its final exit through a system of conduits so arranged that before reaching them, it has parted with all its manurial power to the soil, through which it is made to pass. The sewage water thus filtered reaches the river through the natural fall of the conduits in a comparatively purified state. The sewage is an exceptionally good manure, and the yield of grass on those fields that receive it is something quite out of the common, so that it can be cut some six or seven times during one summer. This system almost seems to answer well so far as the sanitary side of the question is concerned, but still there are a good many places which prefer the method by which the sewage is collected in large tanks, whereby it is possible to benefit larger areas by its fertilizing qualities. Frankfort-on-the-Main is another German town where the sewerage system is very perfect, but owing to the excessive cost of land in that locality the sewage is not, as in Berlin, used as manure in the first instance. The sewage is purified before being allowed to escape into the Main, and the residue is pumped into receptacles from where the farmers fetch it. The town of Hanover is also about to adopt the sewerage system on a larger scale. In Augsburg and Heidelberg the barrel system is used, much more satisfactorily in the latter than in the former town. In Heidelberg the corporation itself attends to the emptying of the barrels. — *Engineering.*

Forestry in Austria. — The United States Consul-General at Vienna says that, according to the latest statistics, the total area of the productive land of the Austrian Empire is 28,406,530 hectares (hectare =2.47 acres). Of these, 9,227,061 hectares are forest lands, of which 1,381,433 are hard woods, 6,587,853 pine woods, and 1,257,775 hectares brushwood. The forests cover about the fourth part of the empire, and are of great value. Their cultivation and preservation, and the administration of the laws with reference thereto, are entrusted to the Ministry of Agriculture, the provincial presidents, and district officers. Their subordinates must all pass an examination, and are divided into permanent and voluntary officers. The former are promoted like military officers; the latter enter the service for the purpose of pursuing their studies practically but receive a moderate salary. They are classified as counsellors, commissaries and inspectors. A forest register is kept, and maps are drawn of each district, which specify the number of acres covered by forest, its condition, age and state of growth. The total number of forest officers of all grades, public and private, employed in Austria, reaches the figure of 31,826. The expenditure for Government forests amounts to 3,546,240 florins, and the revenue to 3,951,650 florins, showing a profit of 405,410 florins. The Government forests contain 952,690 hectares, municipal 1,297,238 hectares, and private forests 6,977,133 hectares. The largest private owners are the Emperor, 35,000 hectares; Imperial family, 25,000; Archduke Albrecht, 115,000; Prince Johann Lechtenstein, 136,103; Prince J. A. Schwarzenberg, 110,718; Count Schonborn, 124,563; Prince of Saxe-Coburg, 74,181; Baron von Sina, 60,000; and Prince Esterhazy, 85,000 hectares. The forest schools of Austria are divided into elementary schools, middle schools, and high schools or universities, and, says Consul-General Goldschmidt, are doing splendid work to fit and educate young men for their future duties, and are worthy of imitation by many countries. — *Journal of the Society of Arts.*

Old-glass Mosaic. — A new use has been found for waste glass by Messrs. Rostaing, Garchey and Geille, of Paris. Any fragments of broken glass of various colors are mixed together, after having been broken to a suitable size; they are then placed in moulds lined with silica, talc, or some other resisting material and fired. A coherent mass is produced which can be dressed and cut into blocks, which are, of course, irregularly colored. Such blocks may be used as artificial marble. The blocks are usually rough on one side, owing perhaps to incomplete fusion; this gives a surface which is admirably adapted for causing them, especially if they are slab-like in form, to adhere to walls with the addition of a little mortar. Fine decorative effects can thus be produced. Designs in relief can be obtained by pressure while the block or slab is still plastic. If a suitable mould be prepared with movable partitions, then pieces of glass can be arranged in such a way that, upon firing, a very effective "stained-glass" window is produced, the necessity of using "leading," as in the ordinary way, being thus obviated. — *Invention.*

TRADE SURVEYS

The fact that commercial failures are running at present some twenty-five per cent above the record of last year numerically, and in the volume of liabilities, is simply another evidence of the existence of disorders beneath the surface of trade, which have been heretofore pointed out. The correction of these disorders seems to be the last thing that is thought of. The causes are not the subject of thought, much less of possible correction, and commercial failures are permitted to roll up and roll on as though they were inevitable, and a part of the commercial life. Without prognosticating, it is safe to say that the subject of commercial failures will some day soon, receive a great deal more attention from economic writers than it has ever received. There is need of study, and an opportunity for doing a great deal of good to the body politic, by closely observing the evils which produce these results. As matters stand, it is better that these failures should take place, as trade channels are kept clear, weak spots are brought to the surface, and weak individuals, firms and corporations cast aside. Of course, after all, the contest is a survival of the fittest, and must always be so; but the fact ought not to be lost sight of — that there is a great deal of unnecessary failure, a hundredfold more unnecessary stringency, than serves any good purpose. It is this point which will receive special attention by the coming economists. The spirit actuating, if there is any, those who control in financial matters is to maintain a minimum supply of currency rather than a maximum, to serve exchanging rather than to serve producing interests, and to protect prices rather than to stimulate production. The volume of trade throughout the country is not increasing week by week, as many prophets had predicted. The railroads, as a rule, are hauling an enormous volume of freight. The heavy manufacturing establishments are, in the aggregate, producing fully up to last year, and, in some directions, five to ten per cent more. One very favorable feature deserving of special mention is the fact that machinery, both heavy and light, is in very active demand, and that the manufacturers of agricultural implements, although not now crowded with orders, are actively preparing for a rush of business, which, in their experience, they see near at hand. The iron trade has not improved very much, although production is increasing. Prices are extremely low, and there is much complaint over the fact. Competition is still depressing prices. The lumber trade is drawing to a close after a successful season of unusually narrow margins. The coal trade is particularly active, the anthracite production this year being three million tons in excess of last year to this date. The petroleum output is far ahead of last year. Land-speculation for town sites has far surpassed last year's record, but a limit has been reached, and reaction is at hand. The reaction is not likely to do much harm, because the great majority of the companies who have been operating in this enterprise have already sold enough land to make themselves safe; but they will be obliged to carry a great deal of their property for years to come before realizing town-site prices. Business men are loath to make extensive contracts for material for remote delivery at this time, and assign as reasons that, while prices are inordinately low, the chances are they will be able to buy at as low prices next spring as to-day; secondly, that it is not worth while to run into debt because of the uncertainty of the abundance of money. And, again, the coming season may develop unexpected influences, which may call for an entirely new treatment. In other words, the business men of the country are determined to creep along from day to day, and let each day's developments decide the course to be pursued. The latest advices from boards of trade in the Far Northwest show that a spirit of enterprise is likely to break out; in fact, it is already aiming at attracting new capital and people from other places. The same spirit is showing itself in the Far West. No less than a dozen conventions of one kind or another have been held throughout the interior within the past six weeks. Commercial water-way conventions, mortgage-holders' conventions and other collections of men, all agitating in the direction of better conditions, by which they can keep more of the wealth produced, and pay less of it to bankers, railroads and large and small money-lenders. This movement in the interior is very significant, and will result in political action in time. It is not necessary that the political or commercial interests of the West should antagonize those of the East, but there is a growing body of men in the West who feel that they have been and are controlled commercially and politically by small bodies in the East, and it is against this control or this condition of things which these conventions and collections of men are working. The agitations at present are more in the form of complaints and protests than any well-digested scheme of relief.

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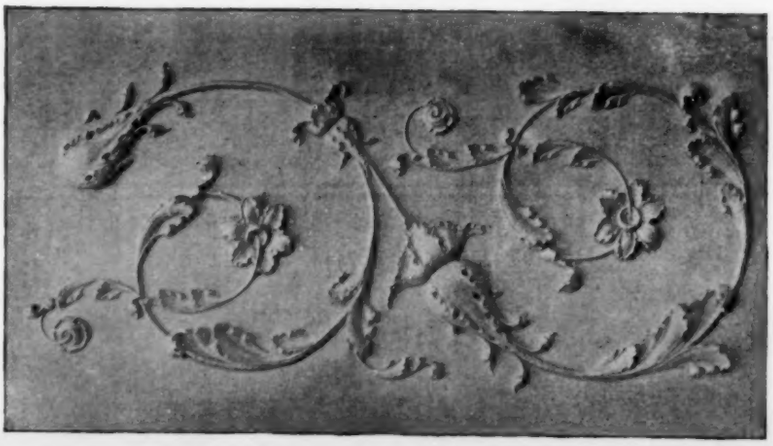

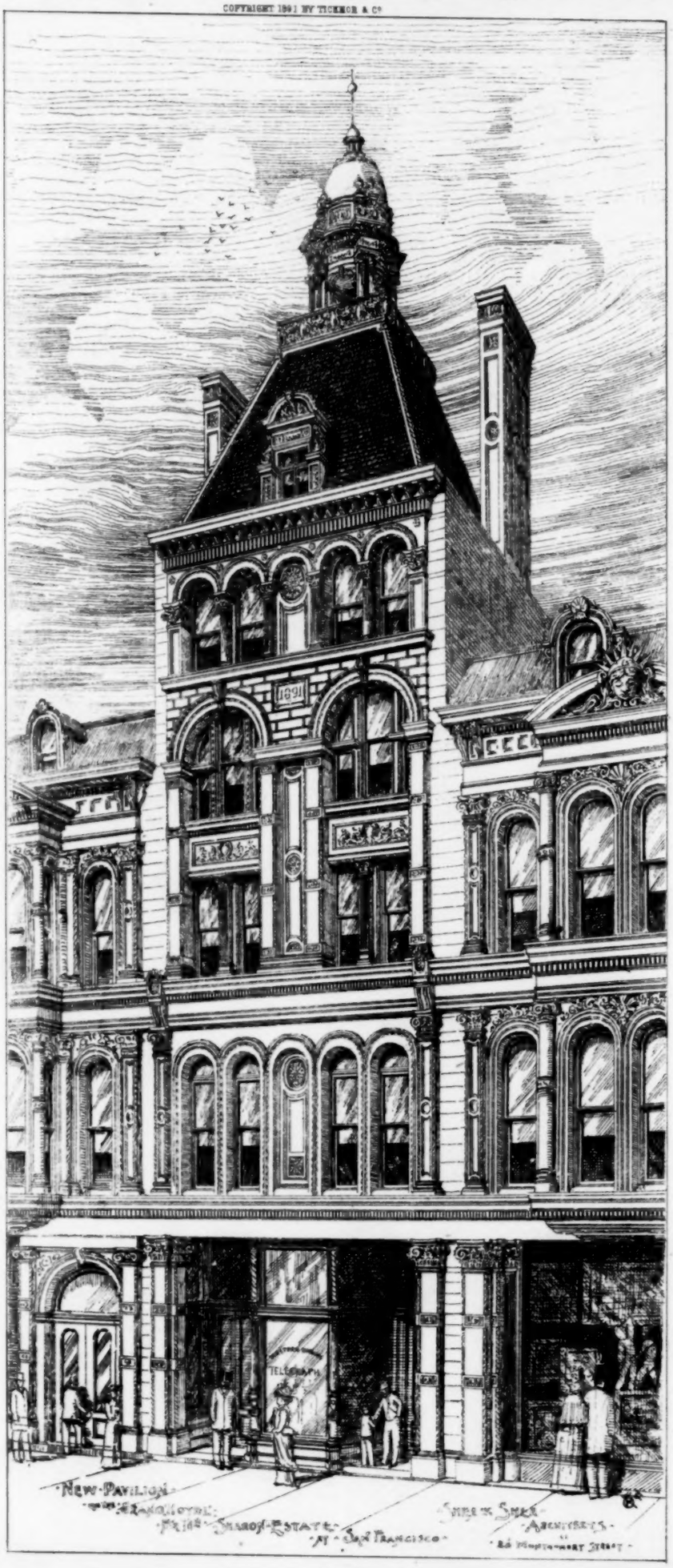

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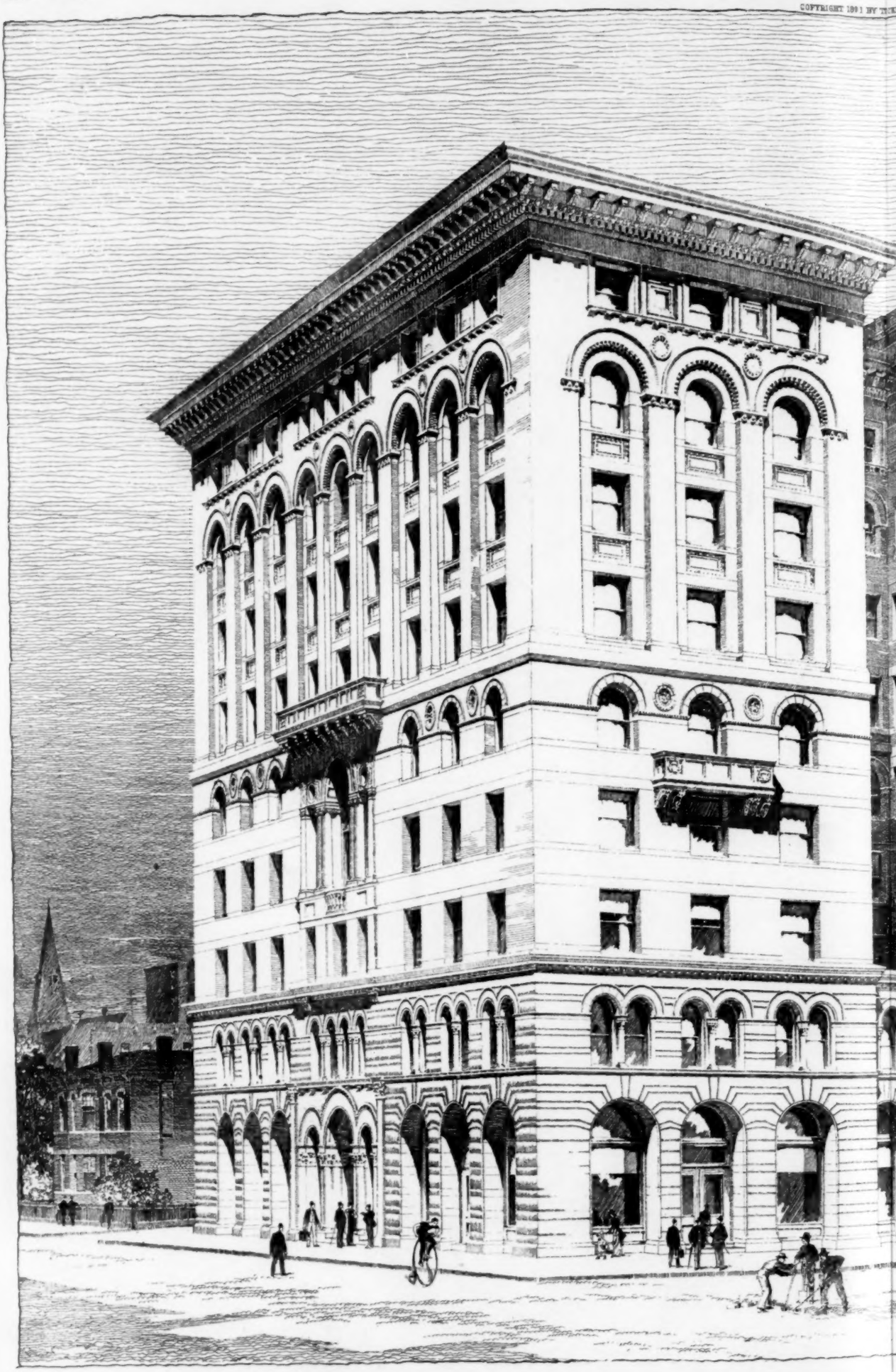

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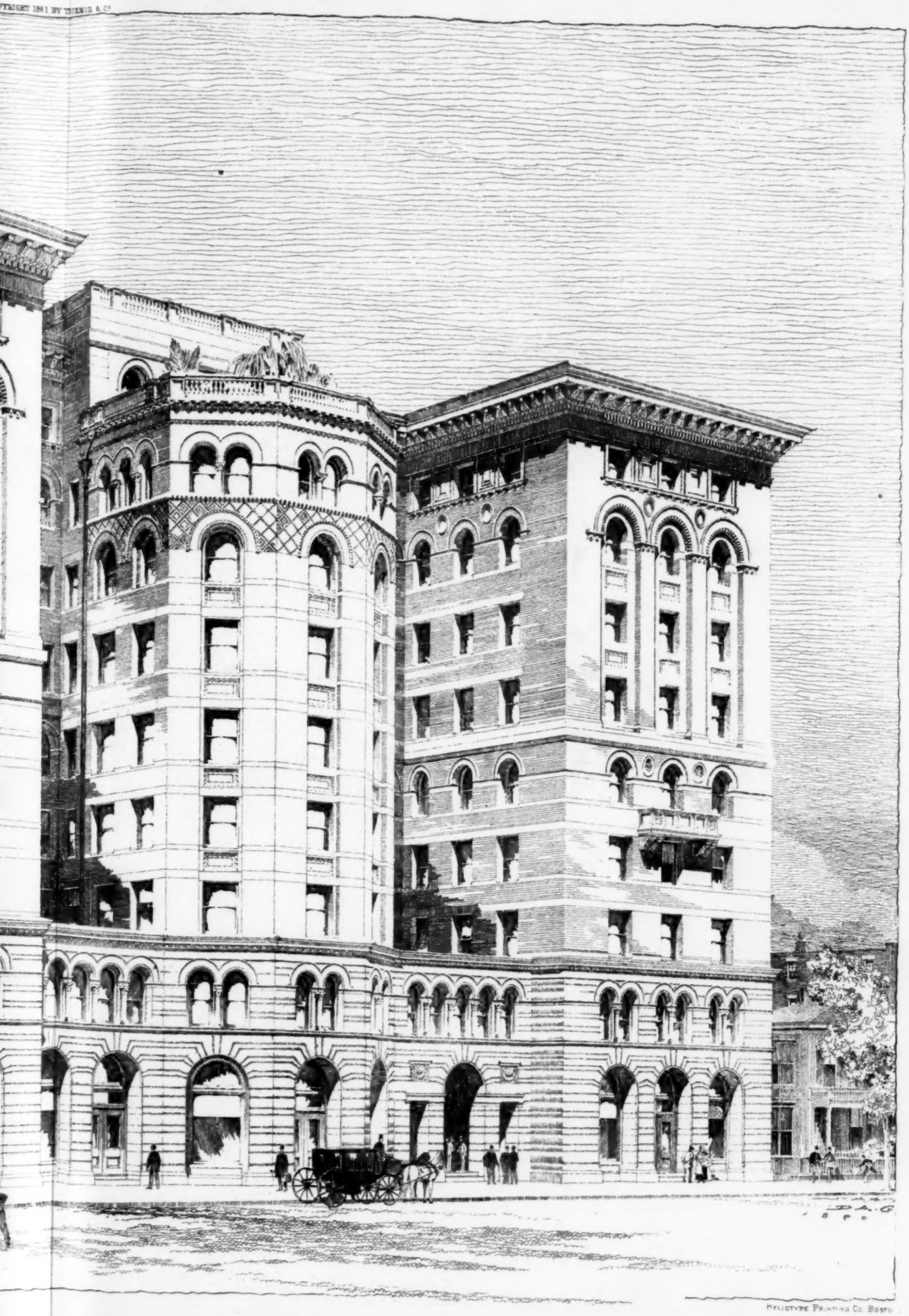

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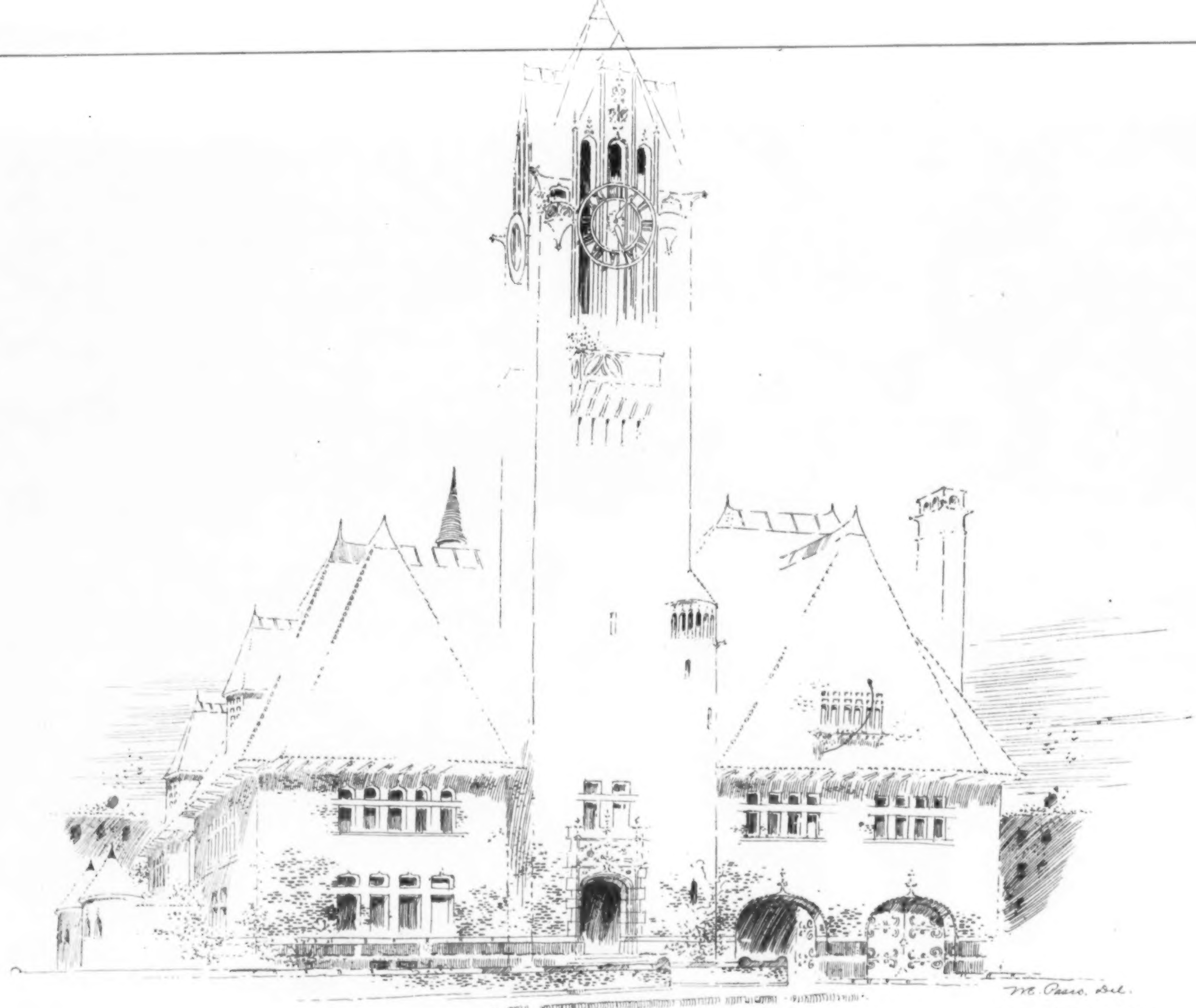

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