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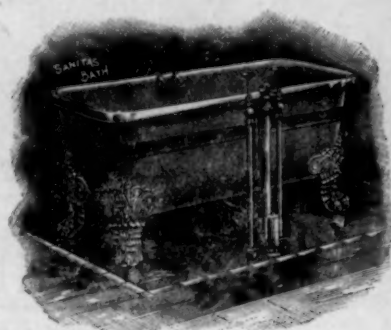
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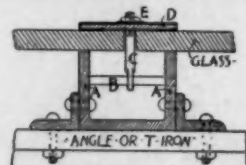
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THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XLV.

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JULY 14, 1894.



SUMMARY:—

The Leaders in the Present Strike.—Pulpit Philosophers as Public Enemies.—An important Cause of the Failure of all Strikes.—A Party-wall Decision.—Proposed Charles River Park, Boston.—Terrorizing English Workmen.—A Jam-maker squashed in his own Juice.—A New Building-law Journal.	13
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ONE of the most curious circumstances connected with the Debs-Sovereign Campaign against the rights and liberties of the American People seems to have been the apprehension felt by the leaders for their personal safety. The least suggestion, that it might be well to put under lock and key the people at whose orders myriads of innocent persons were suffering, was followed by a chorus of threats so prompt and violent as to show that the individuals interested had had already thought of such a contingency, and had prepared beforehand the terrors by which they hoped to avert the danger. We were told that "civil war" would immediately result from placing a check upon the activity of the reckless ruffians whose followers, being, as they said, "beyond their control," were murdering faithful railway officials, plundering freight stations and burning cars by the mile, as if they were not already carrying on a one-sided civil war to the best of their ability. It generally happens with cowardly persons that the noise with which they denounce those who propose any proceedings against them is proportioned to their fear of such proceedings; and the public will probably note, to its future advantage, the fact that the autocrats who can threaten to "stop every wheel" on a great railroad, and bring many thousands of poor people to misery, unless they—the autocrats—have their private pockets immediately filled with money from the treasury of the road, become wild with terror at the idea of being compelled, by the strong arm of the law, to exchange their lucrative and exciting occupation for the cold solitude of the jail.

ANOTHER class of persons, who need the attention of the friends of liberty almost as much as the professional pirates who prey upon our internal commerce, is to be found in the pulpit philosophers who find that their associations and arguments are propounded, with most comfort to themselves, in a place where courtesy forbids any reply to them. During the desperate struggle in Chicago between liberty and order, and the savage despotism of ignorant force led by devilish malice, the worst enemies of decency, and the best friends of the cunning apostles of anarchy, have been the ministers, or rather, that part of them who allowed themselves to be deluded into signing an appeal for a meeting to consider a "compromise" between Debs and his victims. It is strange that men who are presumed to have an insight into character should not have seen that this scheme was simply a device of the Debs gang, familiar to every one who has followed the history of "labor" conspiracies, to enable the chief ruffians to escape, in case of need, with uninjured personality from the fray which their machinations had brought about, and even to clothe them with increased lustre in the eyes of the public, and of their ignorant slaves. It is obvious enough that Debs dragged to jail, either peacefully like a coward, or with his clothes torn and his hat

crushed after a struggle with the police, is a very different thing from the mighty Debs, leaving for a moment his "base of operations" at St. Louis or Detroit, to listen condescendingly to "compromises" offered him by a circle of obsequious divines. As the granter of "compromises," although they may be compromises only in name, he retires from the scene, deified by the howling mob as the man who has "wrested" from capital terms somewhat vaguely advantageous to the poor and lowly; he figures before the public as a man to be feared, inasmuch as he can wantonly stop commerce over half the nation, and yet get off scot-free; and, last, but not least, he is sure to be safe from arrest as long as he can protract the negotiations with his ecclesiastical cat's-paws. Such advantages as these are well worth securing, and it is hardly necessary to say that the art of securing them has been long and successfully studied by the professional mischief-makers; but it is most unfortunate that the Chicago clergy should have been such easy dupes of so transparent a scheme, and that anything should have been allowed to interfere with the good old American way of dealing with crime, through the unconditional surrender and suitable punishment of all the criminals.

WHERE is one phase of these modern conflicts between organized labor and the existing state of things to which the labor leaders seem entirely oblivious, and yet it is even now one of the most potent causes of the failure of strikes, and its power grows with the advent of every new labor struggle. Ninety per cent, probably, of all labor can be performed by one man as well and as satisfactorily as by another, after a very short apprenticeship, and the term of this necessary apprenticeship becomes shorter and shorter as the labor becomes more purely manual and less intellectual, that is as it concerns those classes of the community which are most prone to yield to the exhortations of walking-delegates and throw away their daily bread. The work that the world, that society must have done in order that it may exist, will eventually be done, if not by one set of men then by another. The usual outcome of strikes has been this:—As one set of men refuses to work, another set takes their places, only to be replaced by still others at the next strike. The result is that there is a constantly increasing body of men, who have foolishly voted themselves out of one trade, and as a consequence, have had to practise perhaps two or three others, and yet are entirely able and generally willing to go back to their original trade, and, at the first opportunity, take their own successors' places. In no trades is this compulsory training being effected with more rapidity than in the trades connected with railroading, which, of recent years, have shown themselves most willing to disregard the interests of the community at large. The reason of the great measure of success that attended the first of the great railroad strikes,—the one which won for Mr. Arthur, the chief of the Brotherhood of Locomotive Engineers, his present reputation,—the Eastern Railroad strike, was because there were practically no locomotive engineers out of work in the country and so the tie-up was effective. But now, thanks to the great railroad strikes during the last ten years at Pittsburgh, Kansas City, Chicago, Buffalo, New York, and elsewhere, there is a large and increasing body of railroad men, who, having rashly forsaken their positions, are temporarily getting their living in other trades, but are always ready to take up their original occupation at the first favorable opportunity. Thanks to this, anything like a prolonged or permanent tie-up is impossible, and organized labor, through its own folly, finds itself driven as a last resource to have resort to open violence and rebellion against the statute law. When labor movements have reached this condition, they have entered on their last stage, for the public will find it the duty of each citizen to prove that a small and misguided minority cannot subvert the condition of things which satisfy the majority.

AN important decision in regard to party-walls was given by the Massachusetts Supreme Court the other day. Many years ago, a certain land-owner, who may be called A, built two houses, on Bedford Street, with a party-wall between them, and subsequently sold the houses to different purchasers, without any stipulation as to the use of the party-wall. B, who succeeded to the rights of one of the purchasers, strengthened

the foundations of the party-wall, and added to its height, for his own purposes, paying all the expense of doing so himself. Afterwards, C, the owner of the adjoining estate, built his house higher, using, for that purpose, the party-wall which had already been carried up. The representatives of B demanded of C payment for a part of the cost of the addition which had been made to the party-wall, which C had now utilized. C refused to pay anything, and a suit was brought, which has just been decided in favor of the defendant, the Court holding that there was no stipulation or agreement in any form, binding the defendant to pay for the use of the wall, and that no such agreement could be implied; and that the defendant was entitled to use without payment, in the way he did, so much of the wall as he found standing on his own land. It may be remarked that there is no general party-wall statute in Massachusetts, and no legislation defining the rights of persons who find themselves in possession of a wall built partly on land of another; so that the court probably felt itself obliged to fall back on the common law rule, that every man is the absolute owner of whatever may be built on his land, no matter how it may have come there. Nevertheless, the building of a wall partly on each of two adjoining estates, or even two parts of one estate, indicates that each party receives value from the other, in the form of a saving of expense, and of available land, in return for which he gives the right to place half the wall on his land, and pays half the expense of building it; and it would not be a very violent assumption to consider that the rights and obligations so conceded and incurred attached to the land, so long as the wall built in common was used by both parties. A provision to this effect might with propriety be embodied in future legislation, and would have the advantage, not only of preventing the appropriation without payment of other people's labors, but of promoting the construction of party-walls, which, particularly in a city of pile foundations, like Boston, represent, where properly arranged, stability of construction, and great saving of expense, and of valuable room.

THE Massachusetts State Board of Health, acting in concert with the Massachusetts Metropolitan Park Commission, has prepared a brilliant scheme for furnishing Boston with a public park of the most attractive kind, by taking possession of the banks of the Charles River as far up as Waltham, clearing away the factories and dwellings which now crowd upon it, and laying out driveways on each side. The tide now affects the river nearly to Waltham, and it is proposed to shut out the sea, and maintain the water-level at a constant point, by building a dam, about eleven hundred feet long, from Boston to East Cambridge, with a lock, by means of which the insignificant navigation of the river can still be accommodated. As the great Metropolitan sewer will soon be in use on both sides of the river, there will then be no longer any excuse for allowing drainage of any sort to enter the river; and if the bottom is once dredged, clear of mud, the water should remain comparatively clean. The advantages which would be derived from carrying out such a plan are incalculable. Not only would the fresh-water lake, eight miles long, furnish an unspeakable relief from the dreary mud-flats, bordered by marshes, which, except at high tide, now occupy the valley of the Charles near Boston, but the improvement of the banks would invite the erection of fine houses on the land bordering the new park. Compared with the other splendid pleasure-grounds which Boston is rapidly acquiring, this water-park would be a very inexpensive affair, and it is much to be hoped that the scheme may be carried out without delay.

A MEETING took place the other day in London, which has a rather unusual interest. The *Builder* prefaces its account of it by saying that "the worm will turn"; the worms in this case being workmen connected with the building trades, who are tired of being ordered about, plundered, domineered over and prosecuted by walking-delegates, and have resolved to see if relief cannot be obtained by concerted action. The building trades in Great Britain are more completely in the hands of the crafty Union schemers than they are here, and it is interesting to read the testimony of English workmen in regard to the ways in which this subjection has been brought about. The chairman, Mr. Maskell, Secretary of the Fibrous Plasterers' Association, began by saying that the object of the meeting was to consider the subject of the removal of the disabilities under which the vast majority of workmen

connected with the building trades now labor. He did not think, he continued, that after the speeches of the evening, there would be much doubt in the minds of the public as to the existence of a sort of reign of terror, which the Building Federation had produced among builders' workmen. The members of the larger unions in the building trades only numbered fifteen per cent of the total number of workmen, the other eighty-five per cent being non-unionists, or belonging to the small unions; yet "this handful of workmen, simply because they were organized, had for many years been dictating terms to the whole of the trade, masters and men alike." To show how this dictation was carried on, he mentioned that a workman was present, who was foreman of the London County Council. This man had once belonged to the Union, but had left it; and his former comrades were doing their best to have him discharged: "Day after day," said he, "deputations of workmen waited on members of the Council, and demanded the foreman's discharge, threatening that a general strike would be ordered unless he was sacrificed to them." "If this was not coercion," said Mr. Maskell, "they had yet to learn what was." For his own part, he could not see why a British workman had not a right to live, whether he held a Union ticket or not; and his observation was that the wives and children of free laborers needed bread quite as much as those of the unionist. Another speaker, Mr. Wheeler, describing how coercion affected him, said that his own brother, who belonged to the Union, dared not give him work, because he was not a member; and many others gave examples of men having been refused work by the London County Council, because, on demand, they could not show the Federation's license to work for a living. Another thought that, if trade-unionism was such a grand thing, it was strange that it did not commend itself to the majority of workingmen. He had observed that the unionists were always saying that the masters were tyrants; but, so far as he could see, it was not the masters, but the unions, that were the tyrants; and he believed that a competent mechanic had a right to work for anybody without being interfered with. After some further discussion, the meeting adjourned, first appointing a committee to devise means for uniting the capable and efficient workmen of the country who were disposed to resist union dictation.

A NOVELTY in methods of dealing with architects is reported from England. A certain Mr. Hartley, a "jam manufacturer," employed an architect to design and build for him a factory, but required him to sign an agreement not to erect more buildings of the kind. Soon after, another jam-manufacturer employed the same architect to build a factory for him, and Mr. Hartley, hearing of it, brought suit for an injunction to restrain the architect from doing so, alleging, as a reason, the previous agreement. The case was heard in the Liverpool Chancery Court. Mr. Hartley, in his testimony, said that he did not desire to prevent the architect from building other jam-factories, provided he did not divulge the arrangement and fitting of his own works. The judge said that, this being the case, the agreement which the architect had signed was wider than was needed to give the protection desired; and he saw no reason for granting an injunction. The suit was therefore dismissed, the plaintiff being charged with the costs. Some further particulars of this case would be interesting. If the judge, on the verbal testimony of the plaintiff, decided that the written agreement should be considered to mean something else than its words expressed, he must have the credit of introducing a rather startling innovation into the law; and if not, it is difficult to see how the injunction could have been refused.

A NEW journal, of great interest to, we fear, a rather small public, is announced in France, under the name of the *Revue Pratique de Legislation et de Jurisprudence du Bâtiment*. It is well known that French architects study, much more than those of this country or England, the law relating to building, which has been treated with great ability in a variety of books adapted for their use; but that the profession should support, or be expected to support a monthly journal exclusively devoted to the subject is a little surprising, and is certainly creditable to the general intelligence of architects in France. The new journal is under the charge of MM. Nicolas Hornbostel and Georges Lecouturier, and is to be published at 13 Rue Bonaparte, at 10 francs per annum.

TOWERS AND TURRETS. — I.

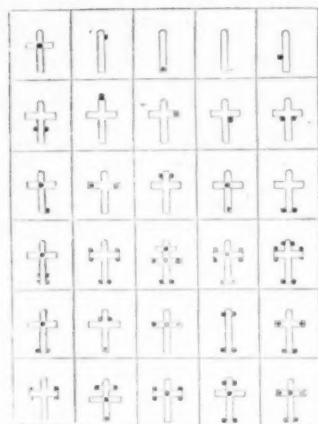


Fig. 1. Different Positions of Bell-towers.

THE tower, which from earliest times has been a material necessity in all military monuments, has become since antiquity either an object of material necessity or, what is oftener the case, of moral necessity and monumental sumptuousness in religious and in certain civil edifices. However its application to the houses of worship of the different cults may have originated, whatever may have been the needs to which it at first responded, it was gradually conceded that, whether of service or not, it added perceptibly to the prestige and majesty of the sanctuary; and builders adopted it so generally that it was soon impossible to conceive of a church without a tower.

Even in antiquity, the tower was incorporated into the religious monument and sometimes it constituted the entire structure, as in certain Assyrian temples. In India, from time immemorial, the various enclosures of the pagodas have been surmounted by imposing towers, delicately wrought throughout their entire height; these gigantic objects of display were originally, perhaps, means of defense. The famous porcelain tower at Nankin, in China, destroyed in 1864, was a sort of commemorative pagoda.

The Arabic mosque employs the tower in the same manner as the Christian church; the minaret is, like the belfry, the lofty place from which goes forth the call to prayer, with the difference that here the signal is the human voice. The minaret rises at one angle of the mosque or is isolated; it sometimes presents an imposing mass, especially in the countries of



Fig. 2. The Leaning Tower at Saragossa.

Barbary; sometimes, as in Persia, Turkey, and particularly at Cairo, it assumes elegant and graceful forms that make it compare favorably with our Gothic bell-towers.

¹ From the French of Anthyme Saint-Paul and H. Nodet, in Planat's *Encyclopédie de l'Architecture et de la Construction*.

Christian worship was divided at a very early date into two liturgies, the Greek or Eastern and the Latin or Western. In the Eastern, but little use was made of the tower in purely Byzantine edifices, and when it did exist in these, it was of only minor importance. The same is not true of the Slavic churches and especially of those of Russia (The Lavra of Kiev, the Church of Saint Peter and Saint Paul at St. Petersburg), etc.

But the Latin liturgy was the real source of the sacred tower and Gaul was its birthplace. The Gallo-Roman bell-tower had a double origin, corresponding to two different rôles. Rising above the intersection of the transept and nave, and hollowed out as a lantern, it constituted a sort of honorary crowning; on the front of the façade it served as a means of defense. Of which kind was the tower known to have existed, at the end of the fifth century, at St. Martin's of Tours? We do not know, but lantern-towers are described in other churches of the period. In the seventh or eighth century, bells of great

size were suspended in these structures, and so from that time they became veritable belfries. Only besides the bell-tower, as early as the ninth century, it became the custom to rear others to add to the sumptuousness of the edifice, and at the end of the twelfth or beginning of the thirteenth, when this practice reached its zenith, certain churches, like the Cathedral



Fig. 3. Campanile of St. Mark, at Venice.



Fig. 4. Belfry of Vendôme.

of Chartres for instance, were surmounted by eight towers. Figure 1 will show at a glance the combinations obtained by the different numbers and positions. In the case of a single tower, the place preferred during the Middle Ages was the intersection of the transept and nave and frequently, especially in the fifteenth century, the centre of the façade; two towers, framed in the façade, a disposition which has been perpetuated down to the present day; three towers were distributed between the façade and the intersection. The disposition of a single tower at one of the sides of the choir was also quite common.

It was in the Middle Ages likewise, that the belfry reached its highest limit both in importance and as an artistic creation. The end of the eleventh century and the beginning of the twelfth witnessed the advent of the octagonal tower and stone spire. The structure then continued to soar higher and to

grow more airy until the fourteenth century, the time of open-work spires, a preparation for which we find in the Norman school of the thirteenth century.

The Renaissance and the Modern period have been fatal to the bell-tower, fully developed specimens of which have been the exception since the middle of the sixteenth century. During the seventeenth and eighteenth centuries it was frequently replaced by the dome. In our day, the belfry has recovered its importance, but simply because of a return toward mediæval traditions. German combinations are less harmonious than those of the French types; but Germany has outstripped all other countries in the height to which it has carried these structures. The celebrated towers of Strasbourg, of St. Stephen's at Vienna and of Notre-Dame at Antwerp are German, or of the German school. The towers of Mechlin and Ulm would have rivalled these, if they had been completed. The present towers of the Cathedral of Cologne, 160 metres in height, have the exact elevation that had been designed for them by the original architect. The Germans continued during and after the Renaissance to build belfries of extraordinary height.

English bell-towers are square and massive, terminating in a platform, and, very seldom, as at Salisbury, in a spire. Their disposition is Norman, that is, a central tower, single or combined with two western towers; the last two are always of equal importance in England, a thing quite rare in France.

Spain displays a great variety in towers as to number, ordonnance and height, but here as in Germany they have been perpetuated since the Renaissance (Fig. 2).

With few exceptions, in Mediæval times, hardly any tower but the campanile (Fig. 3) was seen in Italy; it is square, starts from the ground and is isolated; generally it is quite lofty and the upper stories are all alike. The campanile was erected in connection with a central dome until the fifteenth century, as appears in Santa Maria dei Fiori, at Florence; in the sixteenth century it disappeared almost wholly and though a few towers were admitted in the ordonnance of the façades, they were insignificant so as not to detract from the prominence of the great dome.

There were also some isolated belfries in France connected with certain abbeys in the basin of the Loire: for example, at Marmoutiers, in Saint-Florent at Saumur, Saint-Aubin at Angers and at Vendôme (Fig. 4); these had already ceased to be exclusively religious edifices, they represented the temporal jurisdiction of the monastery; it was in some sort a feudal capital, as were certain donjons, for example those of the Louvre, of Bourges and of Poitiers.

In the twelfth century, the idea of jurisdiction became so inseparable from that of the tower that the communes of the north of France and of the Netherlands, as soon as they had acquired their liberty, hastened to erect one containing the municipal bell, termed the belfry, a name which came to be applied to the tower itself. On the other hand, as soon as the commune was subdued by the suzerain, the tower was demolished.

There is no belfry in existence antedating the thirteenth century; that of Saint-Antoine, which belongs to this period, is only a small seigneurial donjon, attached to a seigneurial edifice, which was bought by the city corporation in the second half of the thirteenth century. The belfry of Tournai, in Belgium, must have been erected shortly after the granting of the commune charter by Philip Augustus in 1187; it was completed in 1245; the belfry of Valenciennes, in Hainault, was of the same period; constructed in 1237, it fell, after a wretched restoration of it, in 1843. Some of the lower portions of the belfries of Boulogne and Amiens are also of the thirteenth century. The belfry of Saint-Riquier belongs to the thirteenth and fourteenth centuries. That of Béthune, with its pretty wooden crowning, is of the end of the fourteenth, and that of Douai of the fifteenth; the elegant belfry of Arras was built about 1525, and the imposing one at Bergues, in the middle of the sixteenth century. In Belgium, the belfry of Ypres dates from the end of the thirteenth century, that of Ghent from 1315 to 1337, that of Lierre from 1400, those of Nieuport and Alost from about 1485; that of Bruges was begun in the thirteenth century and completed, or rather reconstructed, in the fifteenth; the Belfry of Brussels is also of the fifteenth century (See "Civil Architecture," "Town-Halls," and "Architecture of the Low Countries," *American Architect* for Feb. 1, 1890, Nov. 4, 1893 *et seq.* and Mar. 11, 1893 *et seq.*).

(To be continued.)

THE ESSENTIAL CONDITIONS OF SAFETY IN THEATRES.¹—III.

FIRE SERVICE AND FIRE EXTINGUISHING APPLIANCES.

A THEATRE should have an abundant and never-failing supply of water for fire-extinguishing purposes, and there should be plenty of fire-extinguishing appliances always kept in readiness and free from encumbrances.

First, as regards the main in front of the theatre: this should be, if possible, an eight or ten inch main, and where the city water system has different pressure zones, the main should be connected with the high-pressure service.

There should be, for outside protection, several large post-hydrants distributed around the sides of the theatres.

The size of the service-main supplying the theatre should be, at least, six inches, if attainable, and four inches should be the minimum size. It is still better to run two mains into the building from opposite streets and to cross-connect the same in the building so as to be sure of an ample supply at all times.

Where water-meters are required on these services, there should be a sealed bye-pass gate-valve, to be opened only in case of fire, as it is unnecessary to meter the water in case of a fire.

There are some cities in which the pressure in the city-mains is at all times ample for fire purposes, and where the stream from fire-nozzles attached to stand-pipes, fed from direct pressure, would reach above the highest part of a theatre building. In other cities, where the Holly system of water-works is arranged, the ordinary pressure of about 35-40 lbs. in the street-mains, is increased in case of a fire, as soon as the fire-alarm has reached the pumping-station, to 100 lbs. pressure.

In the majority of cases, however, the pressure in the street-mains, suitable for domestic purposes, is insufficient for fire-protection, and it becomes necessary to supply the fire-valves and the sprinklers in the theatre either from fire-pumps, or from elevated open tanks, or finally, from closed tanks with compressed air. Even the pressure obtained from elevated tanks is not sufficient to produce effective fire-streams, except in the lower parts of the theatre.

It is usual in theatres, to operate the sprinkler system from roof-tanks, and the fire-valves under pressure from a large fire-pump, and to omit any connection between the fire stand-pipes and the roof-tanks.

Every theatre should, therefore, be fitted-up with one or several powerful fire-pumps, either of the rotary type or of the direct-acting plunger type. The best type of direct-acting pump, the "Underwriter" standard fire-pump, should be selected. For small theatres, the pump should have a capacity of 500 gallons per minute, equivalent to 2 fire-streams; medium sized theatres require a four-stream pump, which is able to throw 1,000 gallons per minute, while large theatres should have either the six-stream pump or two fire-pumps of smaller size. These pumps should ordinarily draw their supply from a large suction or reserve tank located in the basement of the theatre, and supplied from the street-mains, but they should be so connected that they are able to draw directly from the street-main in case of fire. The fire-pump should also be used to feed the open roof-tanks for the sprinkler system. It should be kept in working order, and tested at least once a week. During performances, steam under high pressure (at least 50 lbs. per sq. in.) should always be kept on the pump to have it ready for instant service.

There should be numerous fire stand-pipes distributed throughout the theatre, at least one on each side of the proscenium-opening on the stage, at least one on each side in the auditorium, one in the corridor near the stage dressing-rooms, one in the property-room, one in the carpenter's shop and others as may be required. Each stand-pipe should have outlets in each tier of the auditorium, and likewise in the under stage, on the stage, in the fly galleries and in the rigging-loft. Each outlet should be provided with standard fire-valve, and with 50 feet of fire-hose with hose-coupling and fire-nozzle always attached to the valve.

The hose should be of a suitable and approved quality, either rubber-lined cotton or unlined linen hose, and both kinds should be able to stand a pressure of several hundred pounds per square inch without leaking or bursting, and should be tested before acceptance. Some of the unlined hose sold in the market leaks like a sieve, and even much of the rubber-lined hose as used for inside fire-protection is of poor quality and utterly unfit for use. I saw the story related somewhere, though I cannot recall now where, that a dealer in fire-hose once asked a purchaser whether he wanted the hose for actual use, or merely "to hang up" to satisfy the Underwriters' inspectors. Whether the story be true or not, it points out a moral and lesson, which those who fit up theatres should bear in mind when purchasing fire-hose.

The hose is ordinarily kept on hose-reels, but it is better to fold it up in swinging hose-racks, or to hang it up on saddles, hooks or pegs, in such a way that if taken out for service it does not twist or kink. There should be at each fire-valve suitable hose spanners. All stand-pipes should be kept clear from obstruction and the access to them should not be blocked. The fire-pump should be fitted with automatic regulator, so that immediately when a fire-valve is opened,

¹ An Essay on Modern Theatre Planning, Construction, Equipment and Management. By Wm. Paul Gerhard, C. E., Consulting Engineer for Sanitary Works. Continued from No. 967, page 8.

the pump is started in action. An efficient substitute for fire-hose and play-pipes consists in the use of so-called "Monitor" nozzles, attached directly to the stand-pipes, which can be turned vertically as well as horizontally, in all directions, and are so balanced as to remain in position while the stream plays. These special fire-nozzles are applicable in particular to the protection of the theatre stage.

A separate and distinct system of automatic sprinklers, with fusible plugs, supplied from a fire-tank on the roof, and not connected in any manner with the stand-pipes, should be provided. The sprinklers should be installed above and around the proscenium-opening, on the ceiling or roof of the stage, under the rigging-loft, under the fly galleries and under the stage, at such intervals as will protect every square foot of stage. Sprinklers should also be installed in the carpenter and paint shops, in the store-room and property-room and in the boiler-room. It is desirable to provide sprinklers in all dressing-rooms, and where the loft over the auditorium is used for any purpose, this should also be so protected.

The sprinkler system should be provided with one or several outside fire-department connections to which the fire-engines may be hitched, and with automatic inside and outside fire-alarm. The fire-tank should have a low-water alarm that will ring a bell in the pump-room.

Sometimes the stage is protected by a perforated pipe in place of the automatic-sprinkler system, and the valves controlling the flow of water to the rows of pipes are operated from the same place on the stage where the fire-curtain, the stage-ventilator and the auditorium vent-registers are operated.

In addition to the fire-valves and the sprinklers, each theatre should have a number of portable chemical or compressed-air hand fire-extinguishers, and a large number of fire-pails or buckets. The fire-pails should be hung on hooks, or set on shelves, and placed on the stage, in the fly galleries, in the rigging-loft, under the stage, and on all the tiers of the auditorium, on both sides of the theatre. Fire-pails should be painted a bright red and marked "For fire." They should be constantly refilled, and must not be used for other purposes. Sometimes so-called "insurance" or "chemical" fire-pails are used, which contain a non-freezing, fire-extinguishing solution, in liquid or in powder form, and which are protected by tin-foil against evaporation.

On the stage there should also be large casks of water, of from forty to fifty gallons capacity, to refill the pails and to form a supply for hand force-pumps. Moreover, there should be provided wet sponges or swabs on long poles, wet blankets, asbestos sheets, asbestos gloves, boxes of sand to extinguish burning oil, various lengths of fire hook-poles, etc.

Finally, there should be on each floor of the auditorium, on each tier of the stage, and in the corridors dividing the stage proper and the dressing-rooms, fire-axes with pick heads, axe-brackets, and knives for the use of the firemen and the theatre employés.

Steam-jets or nozzles for extinguishing fires may be fitted-up in inaccessible corners, and in the rigging-loft, but neither on the stage nor in the auditorium should steam be used as an extinguisher, as it would tend to increase the fright and confusion during a fire or panic.¹

LIFE-SAVING APPLIANCES.

When a fire breaks out in a crowded theatre, the first thought should be the safety of the audience and of the people in the stage-house, and the saving of property or of the building should be a second consideration. The fireproof curtain and the stage-ventilator may be classed among the life-saving appliances. We may also consider as arrangements tending to save life, the provision of plenty of wide aisles, and of numerous fireproof stairs and exits. The auxiliary lighting of the latter may also be considered a necessary feature for the saving of the audience.

Special life-saving appliances, such as scaling-ladders, extension-ladders, a large jumping-net, a chute or flume-escape, rope or pulley-escapes, smoke-respirators, are generally carried by the fire-brigade. Some of these, for instance, the jumping-net, may with advantage be kept in readiness at each theatre, to assist in saving life.

WM. PAUL GERHARD.

[To be continued.]

HUMAN LABOR AT GREAT ALTITUDES.—Investigation among the workmen on the Peruvian Central Railroad has brought some curious facts to light concerning the capabilities of men to labor in rarefied atmosphere. The line starts at Lima, in latitude 12 degrees, and the highest point reached by the road is at the tunnel of Galeria, which is 15,645 feet above sea level. From deductions made by the investigators it appears that the men were able to perform a fair "sea-level" day's work at any place along the route where the altitude was not greater than 8,000 or 10,000 feet, providing they had gradually worked up to that height from lower levels. At altitudes above 10,000 feet and under 12,000 the amount of work performed by each man showed a sudden falling off of from one-fourth to one-third, and at from 13,000 to 15,000 feet, 100 men could do no more work than 50 would at sea level.—*Cincinnati Commercial Gazette*.

¹ For a detailed discussion of the water-supply and fire-protection of theatres. I refer to my paper on the subject, read at the meeting of the New England Water-Works Association, June, 1894, and published in the *Journal of the Association*.



STREET IMPROVEMENTS. — PROPOSED CONVENTION OF SUPERINTENDENTS OF STREETS. — NEW THEATRES. — EXHIBITIONS. — THE COLUMBIAN CLUB-HOUSE. — THE C. B. & Q. TERMINAL. — TAXABLE VALUES.

PROGRESS is often hampered these days in St. Louis, by people who have never been known to make the world any better off by their presence in it. There are property-owners in the city, who make themselves obnoxious by resisting all improvements which concern their respective holdings. A certain individual, a woman, has seen fit to resist the Street Improvements Law, one of the wisest legal regulations that was in force in this city. It gave more power to the city in making street improvements than it possessed before its enactment. It proved a most efficacious weapon for striking down provincialism, and reconstructing streets that were badly in need of it. While the good work was in progress, the woman in question appealed to the courts and her petition is being considered by the Supreme Court of the State of Missouri. The consequence of this is that improvements of all kinds, so far as the streets are concerned, have come to a standstill, awaiting the court's decision. Not a single appropriation for street reconstruction has been asked for by the Municipal Assembly since this state of uncertainty has come about. Things will remain thus until a great deal of red tape has been unwound, prior to formulating a new bill, if the old one is declared unconstitutional.

The Stone Boulevard Law was recently declared unconstitutional, and, in consequence, a number of the finest West End streets that were set apart for the exclusive use of carriages, and called boulevards, are now the main arteries of travel for coal-wagons, garbage-carts and furniture-vans. The Republican is, unquestionably, the best form of government, but in our country every day we can see it most woefully abused and advantage taken of its liberality. The city has not forgotten to charge up to the property-owners the maintenance as "boulevards" of what are now "streets." Our inefficient municipality grabs everything and gives nothing. Even while the Boulevard Law was in force, the so-called boulevards were nothing but ordinary streets. They were not improved more than the other streets ought to be. They were merely macadamized streets, with a little gravel thrown on, rolled down, and badly maintained. They were distinguished from other thoroughfares by the fact that no business wagons were allowed to travel over them. This regulation was repeatedly broken, yet the offenders were dismissed in the police courts with a mere admonition.

Work on the new city-hall has been stopped for an indefinite period. The city is in want of funds. No more bonds can be issued as the limit of the bonded indebtedness, which has been defined by law, was lately reached by the issue of \$2,000,000 worth of gold bonds. These were taken by two New York firms. The building will be boarded up, allowed to go to rust for awhile, and then a large amount of money must be spent for restoring it to its former condition, and completing it. An immense sum of money is needed for numerous urgent improvements, and in these hard times the city government will find it a most difficult task to obtain it. A special tax has been proposed as the only remedy, and this will, undoubtedly, be resorted to in the end. The sum of \$1,500,000 will be needed to complete the city-hall, and several millions will be required for the new city hospital. A new union market, a new court-house, a large addition to the insane asylum, a poor-house, several large viaducts and miles upon miles of street reconstruction are urgently needed. In all, \$15,000,000 would hardly pay the bills. Let it be understood that St. Louis is not bankrupt by any means, but the city needs money and a great deal of it.

Major Murphy, St. Louis's street-commissioner, one of the most energetic men connected with the municipal government, is greatly handicapped in the performance of his duties by adverse legislation and unprogressive property-owners, but the facts that he is a Democrat and the city administration Republican show that he holds his office on account of his real value and ability. His latest scheme is a most admirable one, and, if carried out, will prove a benefit, not only to St. Louis, but to all large cities of the country. It is nothing more nor less than that a convention of street-commissioners or commissioners-of-public-works be held yearly for comparing notes as to cost and methods of street and public improvements generally. The idea has, undoubtedly, occurred many times to the minds of some people, but it remains for Major Murphy to bring it to a realization. He has received most enthusiastic replies from the mayors and other officers of the chief cities of the Union. Matters have progressed so far that the time and place have been selected for the first meeting of the convention, which will be held in Buffalo, N. Y., in September. It seems that Buffalo has done more street reconstruction than any city in the country of late, and it has been

selected chiefly for this reason. These conventions certainly ought to be of the greatest benefit to the various cities. Then there is no city which has not original methods that are unknown to others and will benefit them. The street-sweeping problem is one of the most serious with which the convention will have to grapple, and it is the intention to make this one of the principal topics of discussion.

Most of the theatres of St. Louis are south of the retail-business section of the city, and several miles from the residence district. The inconvenience of such location is readily apparent. The ice has been broken, however, and two theatres will be built in the West End. One will be built on Olive Street, near Grand Avenue, and for this, Mr. G. Becker, a local architect, has just completed the plans, in which some novel ideas have been introduced. The style of architecture will be modern Italian. The first story will be of Bedford (Ind.) stone, and the remainder of buff Pompeian brick, with stone and terracotta trimmings. The interior will be something entirely new here in theatre architecture, comprising a parquet surrounded by private boxes, grilles and railed, of easy access by several passageways, so arranged as to give a full view of the house, and yet assuring almost absolute isolation for the occupants of the boxes from the general gaze of the auditors in the parquet and circle. Also on the first floor there will be special spacious parlors and reception-rooms. There will be a large *foyer*, much after the plan of that in the Grand Opera House, Paris. One feature, which will be entirely new in American theatres, will be the entrances. There will be no less than eight, with two carriage-drives at each extremity of the theatre front. Besides the parquet, there will be a family and general balcony, in all two tiers above the parquet. On the roof, there will be a summer-garden for light performances.

A second theatre will be built in connection with a hotel on Jefferson Avenue, extending from Locust Street to Washington Avenue. The entire building will be very handsome, seven stories high, and built of white stone. Messrs. Kirchner are the architects of the proposed structure.

The St. Louis Chapter of the American Institute of Architects some time ago held an exhibition of the work of its members at the Museum of Fine Arts. The exhibition attracted a great deal of attention, as the great ability shown in the drawings, plans, etc., was a surprise to many, not that St. Louis architects are not capable of fine work, but in this case their efforts surpassed the general standard, if such can be defined. The work of Mr. Partridge was widely commented upon for its true feeling. Many of the drawings were of buildings already erected in this and other cities by local architects, while others were fancy sketches or copies of French masterpieces. Many of these were delightful, and brought to our minds most forcibly the close alliance between true art and architecture. We could not help but notice in this exhibition, the rapid strides that the profession is making in this country. Foreigners are always reminding Americans of this fact, but it has seemed to become so natural to us that we do not realize it. The cold, rigid, and meaningless architecture we inherited from England, of which there are still many examples in the older cities of the country, has given way to one in which exists the refined and well-trained fancy of him who is at once the artist and architect. The influence of the French school is apparent, combined with happy notions of our own.

The St. Louis Artists' Guild recently held a most interesting exhibition of the work of its members at the Museum. The exhibitions are held annually, and art lovers always look forward to them with a great deal of pleasure. Mr. R. P. Bringham, the sculptor, of whom St. Louis is especially proud, exhibited three specimens of his work, the most successful of which, strange to say, was of a utilitarian nature being the figure of a woman holding an electric-light in each hand. This is meant for a newel-post or other place in the hall of a private residence. Mr. Holmes Smith showed some of his water-colors, chiefly sylvan in character, a decided departure from his usual work. Mr. Partridge, whom we mentioned above, is a member of the Artists' Guild: his water-colors are delightful, and possess the great refinement and taste to be found in his architectural work. A painting entitled "The Smith and the Smithy," executed by Mr. Berneker, attracted a good deal of attention, chiefly on account of its fullness of color, fine detail, and vigorous treatment. Miss Hoke's miniatures were much admired. Mr. Von Salza showed some of his local and European work. This artist is a recent valuable addition to the art circles of St. Louis, and his residence here is due to the solicitation of Prof. Ives, Director of the Museum of Fine Arts. The latter, by the way, never lets an opportunity pass to promote the art interests of St. Louis in every way in his power. The fact that he was the Chief of the Fine Arts' Department at the World's Fair is the greatest possible testimony to his ability, both executive and artistic.

One of the handsomest buildings that is nearing completion in St. Louis at the present time is the Columbian Club-house on Lindell Avenue. Its membership is made up of the leading Hebrews in the city. The structure is Italian Renaissance in style, and is built of buff brick with buff terra-cotta and Cleveland bluestone trimmings. Mr. Alfred Rosenheim is the architect. The distinctive features of the building are the grand banquet-hall on the second floor, which measures 50 x 110 feet, and will accommodate six hundred banquets at one time; and the ball-room on the third floor, which runs the entire length of the

building and will be the finest in St. Louis. On one side of the ball-room is a large loggia with projecting boxes, the same idea being here carried out which distinguished the banquet-hall in the New York Building at the World's Fair. The furnishings of the new building are very elaborate. The entrance-hall on the ground floor will be in the style of the First Empire, being done in green and gold. The ladies' reception-room will be in white and gold, while the gentlemen's will be in the style of Louis XVI. The ceiling of the latter is divided into two fresco panels, entitled "The Progress of Art," and done by a St. Louis artist. The rest of the structure is beautifully furnished and decorated in the various styles, and it is evident that no money has been spared in the construction and furnishing of the building.

The Chicago, Burlington & Quincy Railroad recently celebrated the opening of its St. Louis terminals and the Alton bridge. It might be stated at the outset, that this railway has expended in the neighborhood of \$5,000,000 for an exclusive entrance into the city. The company's yards at Mound Street are the most extensive and improved in the country. The rock-ballasted road-bed is laid with heavy rails and ties, and the wagon-ways between the tracks are laid with granite blocks. The Broadway Station, for suburban travel only, is at the yards. The main freight station, which is also said to be the largest in the country, is at Franklin Avenue, immediately south of the yards. The company's entrance into the city is from the north, being double-track from Portage des Sioux, St. Charles County, to the Mound Street yards. At Bellefontaine Junction, a double-track branch-line runs to the suburban town of Alton, Ill. Although the double-trackage is not more than twenty miles long, in this short distance two of the greatest rivers in the world have to be crossed, the Missouri and the Mississippi; the former flowing into the latter only about four miles above the northern city limits of St. Louis. The bridge across the Missouri at Fort Bellefontaine is owned by the railway company, while the draw-bridge at Alton, crossing the Mississippi, is owned by a private company. On May 1 both structures were opened to the public, and the day was declared a holiday at Alton, where the celebration took place. The railway on the opening day inaugurated its suburban service. Alton is the most beautiful of St. Louis suburbs, being finely located on the bluffs overlooking the Mississippi River.

The great coal-strike is affecting St. Louis most seriously, from the fact that the city is entirely dependent upon the Illinois bituminous coal-fields for its fuel-supply. There is but one city in the United States which uses more soft coal, and that is Chicago. The consumption is about 2,500,000 tons per annum in St. Louis, while the anthracite coal figures up but 100,000 tons per annum. All coal supplies are very low here, and a great many steam-plants have been compelled to shut down entirely. At High-service Pumping Station No. 2 of the water-works system, the boilers are being altered so that oil fuel can be burned. Of course, the city will spare no expense to keep all the water-works in full working order, for, if they were shut down, it is readily apparent that an incalculable damage would be done to the city and its interests in many ways. The Illinois bituminous coal-fields are only a short distance from St. Louis, being not more than fifteen miles from East St. Louis, Ill. The average supply from this section for the St. Louis market is about one thousand carloads per day. The street railway plants, which are among the largest coal users in the city, are also fitting their furnaces for burning oil. A great deal of coal is being imported from Tennessee, Kentucky, and the Kanawha district in West Virginia, but at greatly advanced prices. Bituminous coal is now quoted in some parts of the city at thirty cents per bushel, while for years past the ruling price has been in the neighborhood of seven cents. The fact has come to light that bituminous coal from Pennsylvania, where the strike originated, is now being shipped to St. Louis, while only a few miles from the city the miners are so loyal to the cause that not a bushel can there be obtained. As far as the mines supplying St. Louis are concerned, work will soon be resumed, because sentiment is now against the men for throwing other people out of work by paralyzing the numerous and varied industries located here.

President of the Board of Assessors, A. H. Fredericks, recently transmitted to Mayor Walbridge the following abstract of the taxable property in the city of St. Louis:

New Limits.—Real estate, \$56,209,610; personal property, \$3,908,020; exempt from city tax, \$1,600; subject to school tax, \$59,117,630.

Old Limits.—Real estate, \$265,344,110; personal property, \$11,102,970; subject to school tax, \$251,237,470; exempt from city tax, \$11,590.

Grand Total.—Real estate, \$321,553,720; personal property, \$15,010,990.

Total subject to State tax, \$308,406,300; total subject to school tax, \$310,355,100; total subject to City tax, \$310,341,850; total exempt from City tax, \$13,190; Foreign Insurance Companies exempt from State tax, \$1,048,880; steamboats subject to special tax, \$639,850.

The State Board of Assessors has been seriously considering the question of assessing all property at its full value. The advantages of this over the old method are readily apparent, and it will doubtless be adopted in the next general assessment.

REMUNERATION FOR DESIGNS NOT CARRIED OUT.

FREQUENT duty of the architect is to prepare designs for schemes or buildings that are never, or only partially, carried out, and for which he cannot, in the ordinary course of business, fairly make a claim. Every company promoter needs the service or assistance of the architect or engineer in preparing any large scheme. A grand hotel, the erection of a pier or winter-garden, workmen's dwellings or some other building, requires an architect before directors enlist the assistance of the public or obtain shareholders; a building-committee for a church or a technical school must have plans prepared to enable them to obtain tenders, and the owner of commercial premises who contemplates an extension requires his crude ideas to be put into shape before he can proceed; but all these undertakings are naturally of an uncertain kind, and are dependent on ulterior conditions of obtaining land, securing rights, shareholders and funds. Unless there has been an agreement with the architect as to his appointment and remuneration, should any unforeseen circumstances arise, he has a poor chance of making a legal charge for his skill and labor. The company or committee may be dissolved, and the members will repudiate their responsibility as individuals. A company is a corporation essentially different in its constitution from a partnership or firm for all purposes of contract, and an architect in dealing with a company should insist upon a properly-drawn contract by deed, under the seal of the company between himself and them. We often hear of an architect taking his instructions from a secretary or a member of a committee upon letters signed by the secretary,—a course which has no binding force. The signed letter is no contract; it may not have been authorized by any resolution, and is not, therefore, binding upon the company. How often we hear of inexperienced men being led into a trap in this way; how many architects have failed to recover their fees after devoting months—perhaps years—of assiduous labor to the requirements of the company! Corporations of towns are equally in the same position: they can only contract under their common seal, and, therefore, any instructions a professional man receives from a chairman of committee, or from the town clerk, or even the mayor himself, will not be of any binding force in law in case of any dispute. Nay, a resolution of the council will be useless, if it is pleaded that there was no agreement under seal. The same precaution is necessary in dealing with any building-committee. An architect may devote many months in the preparation of designs for, say, a church; he may receive instructions to make alterations or a fresh design, prepare plans to receive the sanction of the Church Building Society, or the architect of the Incorporated Society for Promoting the Building of Churches; yet if he does not obtain an official recognition of his appointment from the chairman of the committee, he may find, should a new committee be formed, that his services are disputed, and that he has no legal claim on them. A recent case of an appointment of an architect to carry out a proposed enlargement of the church at Clacton-on-Sea came before Mr. Justice Charles in the Queen's Bench Division the other day. The architect sued the honorary secretary of a building-committee formed to carry out a church enlargement, to recover a sum of £79 for designs which he had prepared at the request of the committee. It appears from the evidence that the instructions of the committee were to alter one aisle of the church, at a cost of £1,000. In making the plans, it was necessary to show the whole edifice, as it was the idea, if funds permitted, to enlarge the whole church to seat 1,000 people instead of 600. The estimate for carrying out this design was £10,000, and the architect occupied some twenty days in preparing his designs. Evidence was called to show that the architect's claim was within the charges fixed by the custom and usage of the profession. The judge, however, pointed out that although these charges were customary ones in the profession, and had been so proved, the Courts had refused to be bound by them, and in every case it was a question for the judge and jury to decide what was a reasonable and fair remuneration for the work done in each particular case. This ruling has confirmed the dictum that no professional schedule of charges can be made binding on those who employ architects, and who have not agreed to such charges. The defendants admitted their liability for a reasonable amount, and paid £25 in Court; but the Judge gave judgment for the plaintiff for £50, including the sum paid into Court. In this instance, the architect had been instructed to prepare plans for an enlargement of one aisle, but had been induced to show a design for the whole building. The question is a difficult one as to how far an architect is justified in making a complete design. Yet it is often absolutely necessary to do so, so as to enable any judgment to be formed of the whole. If it was contemplated to enlarge the whole edifice, there was every reason for making a complete design. But according to the ruling of the Courts, it is left to the judge and jury to say what a fair and reasonable remuneration should be. In short, the architect can make a complete design for a building or alteration, but he cannot legally claim for more than the portion he was first asked to submit. The lesson is one of instruction and warning to the profession. They often prepare elaborate and costly schemes, for which they have no legal claim when there has been no agreement. Sometimes several sets of plans are made, to meet with the views of different parties or individuals, but all this labor must be performed at the risk of the architect if he has not

thought fit to make a special agreement with those who employ him. In another dispute, plans for a Roman Catholic church had been prepared by an architect of Edinburgh, which were approved by the authorities; the architect died, and the defendant refused to arrange a suitable remuneration for the services rendered. It was explained in defence that the selection of plans did not lie with defendant, and that the sketch-plan was prepared only to assist him in laying his ideas before the authorities. We could mention other instances where architects have taken immense trouble to assist individuals and committees in their projects, but have found too late that they have no legal claim for remuneration, except, indeed, whatever sum the promoters are pleased to give them or the Court to award. Prospective designing is badly-paid work. A good deal of it, we know, is done by young members of the profession, whose main object is to keep their names before the public, and who are often willing to give their services gratuitously at first, hoping to obtain their reward when the project is carried out—perhaps it may be in the shape of an official appointment. — *The Building News*.



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

CARRIAGE ENTRANCE TO HOUSE OF C. P. HUNTINGTON, ESQ., 57TH ST., NEW YORK, N. Y. MR. GEORGE B. POST, ARCHITECT, NEW YORK, N. Y.

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

TREMONT TEMPLE, BOSTON, MASS. MESSRS. BLACKALL & NEWTON, ARCHITECTS, BOSTON, MASS.

THE building known as Tremont Temple and occupied by the Baptist Church of the same name, has been three times destroyed by fire, the last time being on the 20th of March, 1893. The building to be erected will be entirely new throughout, and will be considerably higher than the old structure. The internal arrangement comprises a large hall known as the Meionaeon, extending from the basement through the first story in the rear; the main Temple auditorium, raised one story above the street level; and three stories of offices over the entire area above the Temple proper, a portion of the upper two stories being occupied by a large Reception or Social Hall. There are also a few offices arranged on the street front at the level of main-floor and balcony, and there are two small stores on the ground floor. The exterior is to be of Indiana limestone through the first two stories, the columns about the central entrance being of iron. The upper portion of the building is entirely of brick and terra-cotta. The diaper-work of the wall making the auditorium is to be executed in fifteen different colors, the details being made of white terra-cotta, and the brickwork of the returns and of the fifth and sixth story of a pale, warm buff tone. The balcony shown on centre of façade will be deeply recessed, with enamelled terra-cotta panelled soffits.

The interior of the auditorium is to be arranged with large stained-glass windows, giving light from each side. The finish about the organ-archway will be of marble up to the spring of the arch, the ceiling and the ornamental treatment of the walls to be carried out in stucco. The organ-case will also be of stucco, and as nearly as possible the organ is to be made fireproof, this portion of the building being the location of the origin of each preceding fire. The gallery and balcony railings and the soffit of the organ archway will be of bronze.

The construction of the building will be as nearly fireproof throughout as it is possible to make it. The three floors above the Temple proper are to be supported by heavy plate girders, six feet deep with a span of seventy-two feet. These are supported by 18" x 28" Z-bar columns, built into the piers of the side-walls. The floor-beams are filled-in with porous terra-cotta, end construction. The partitions throughout are of one and one-half inches solid plaster on expanded metal lathing, the building being plastered throughout with Windsor cement. The foundations, over a considerable portion of the area, are carried thirty feet below the sidewalk to allow for a large engine and boiler room. The lighting will be almost entirely by electricity. The offices are reached through the side-entrance on the right, leading to two Graves' elevators with a speed of 350 feet a minute.

The Temple proper is to seat about 3,000. The Meionaeon seats about 800, and the Social Room has accommodation for about 300. There are three lines of staircase from top to bottom, and from the Temple proper there are to be twelve lines of exit, besides liberal fire-escapes on each side and at the rear to the adjoining building.

INTERIOR OF THE SAME.

[Additional Illustrations in the International Edition.]

MONUMENTS TO RENAUDOT AND TO BARYE, PARIS, FRANCE.

THESE prints are copied from *La Construction Moderne*.

SKETCHES AT RAGUSA, ITALY.

This plate is copied from *Zeitschrift für Bauwesen*.

ENTRANCE TO THE NORTHAMPTON INSTITUTE, NORTHAMPTON,
ENG. MR. E. W. MOUNTFORD, ARCHITECT.

This plate is copied from *The Builder*.

HOUSES AT NYMPHENBURG, BAVARIA.

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STAIRCASE OF THE FREE PUBLIC LIBRARY, EDINBURGH, SCOT-
LAND. MR. G. WASHINGTON BROWNE, ARCHITECT.

STAIRCASE OF THE JUNIOR CONSTITUTIONAL CLUB, LONDON,
ENG. MR. R. W. EDIS, ARCHITECT.



BOSTON, MASS.—*Annual Summer Loan Exhibition of Paintings; also, New Accessions to the Print Department:* at the Museum of Fine Arts.

NEW YORK, N. Y.—*Twenty-sixth Annual Spring Exhibition:* at the Metropolitan Museum of Art, opened May 8.

Group Exhibition by American Painters—William M. Chase, J. Alden Weir, Childé Hassam and others: at the Galleries of the American Fine Arts Society, 215 West 57th Street.



A BANQUET COOKED BY ELECTRICITY.—On Friday evening last, the City of London Electric Lighting Company, Limited, gave a large banquet at the Cannon-street Hotel, for the purpose of demonstrating the feasibility and convenience of cooking by electricity. Before the dinner commenced, the guests were invited to see the apparatus at work, and had the opportunity of inspecting the joints, poultry, fish, vegetables, etc., frying and simmering in the electric ovens and saucepans. A temporary kitchen had been set up close to the dining-room; this was, of course, perfectly easy to do, as there were no flues to provide for the escape of the products of combustion of coal and gas. The influence of the near proximity of the cooking-apparatus was felt in the hot state of the viands. Instead of having to travel a long distance from a kitchen, either underground or on the highest story of the building, arriving half cold, as is too often the case at public dinners, they were brought direct from an adjoining apartment, and were served before they had commenced to cool. The cooking was in every way excellent, and left nothing to be desired; as, indeed, it should be when the heat is under absolute control, and there are no products of combustion to mingle with the delicate flavor of the comestibles. At the close of the dinner, the Lord Mayor—an authority every one will respect—declared that it had been in every way satisfactory. The chairman, Sir David Salomons, explained that there were 120 guests, and 60 units of electricity, costing exactly 1/6, had been used in cooking the dinner. This works out to 2d. per head, or 2d. per course, a truly insignificant amount. While the company charge 8d. per unit for current used for lighting, they charge only 4d. for that employed for cooking and motive power. Dr. Sylvanus Thomson, in reply to the toast of "Success to the Development of Electricity," recalled a former electric dinner given in 1749 by Benjamin Franklin on the banks of the Schuylkill. The turkey was killed by an electric shock, and cooked by a fire kindled by an electric spark, while various electric experiments seem to have served as *entrées* in an intellectual entertainment which preceded the dinner. Dr. Thomson's wonderful knowledge of early scientific history renders his speeches, on such occasions as these, most interesting. — *Engineering*.

TESTING OLD MASTERS WITH THE CAMERA.—The propaganda of art exploration which Dr. Wallace Wood set on foot in his exceptionally brilliant analytic lectures at the old University in Washington square stopped just short of the actual reformation in the study of art demanded by ideal criticism. There has been an enormous and stultifying amount of cant and ignorance in the differentiations of the masters of art, even from those accepted as the ablest experts. Scarcely a year passes that does not bring forward some alleged Raphael or Rembrandt, which careful investigation invariably shows to be a brazen forgery. Even so accomplished a critic as Ruskin has proved himself inadequate to the task of distinguishing a Canaletto from his mechanical imitators, Belotto and Marieschi. It is not enough to possess the critical sense, to formulate adequate opinions upon the *chefs-d'oeuvre* of art and the characteristics of great artists. Take, for instance, the familiar catalogue of the old-time collection of old masters in the Louvre. Here there are fourteen pictures ascribed to Raphael. But four of these are genuine, and one, "La Belle Jardinière," has been so retouched that, substantially, nothing remains but the composition. Expert exploration has revealed that no less than five of these alleged Raphaels are by Giulio Romano, while the others are to be ascribed to various pupils of the great Raphael. The result of such bungling connoisseurship is the formation of a false impression of the artist. The would-be representation of "the school of Raphael" crystallizes into a few almost abortive types of the artist, expressed in two fairly rep-

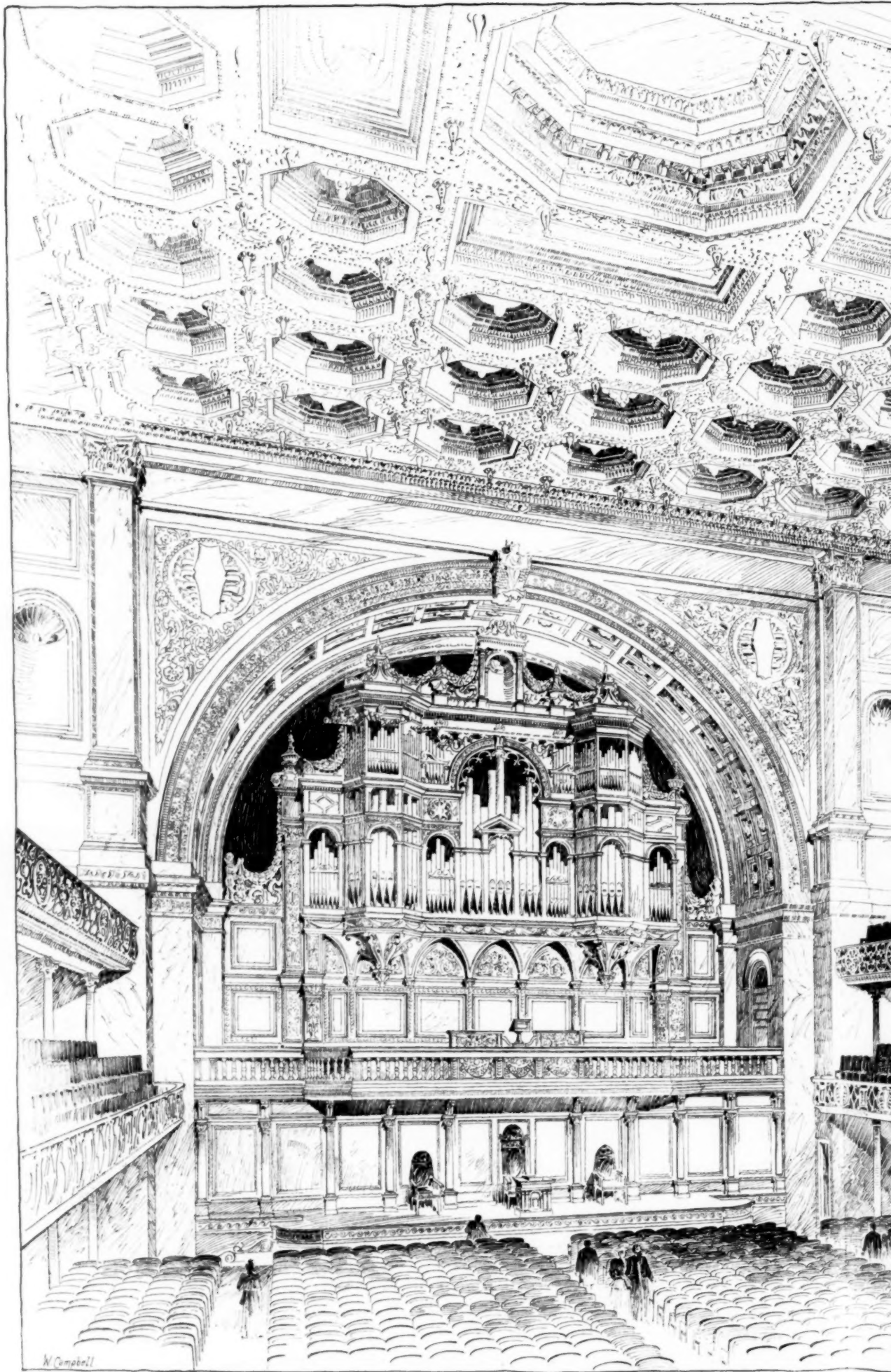
resentative pictures and two others, products of his boyhood years. It has been reserved for the art of photography, guided by the hand and eye of a skilled scientist, Dr. Morelli, to tear down the factitious scaffolding that has for years obscured the truthful records of the so-called masterpieces of renowned old artists. The closing years of this nineteenth century will, it may be unhesitatingly ventured, witness such an upheaval in the false traditions existing as to the old masters as will mark a new departure and a new era in the study of art. — *New York Mail and Express*.

SEWAGE DISPOSAL BY IRRIGATION AND BY CHEMICAL TREATMENT.—Col. George E. Waring, Jr., recently wrote as follows to the *New York Evening Post*: "There are two instances of sewage disposal in Ohio which are instructive. At Canton an elaborate chemical plant was constructed at a cost of over \$26,000, not including the cost of the land, and about \$3,600 was paid for operation last year. The daily flow of sewage is about 880,000 gallons. At Oberlin twenty acres of land was bought for \$1,500. Only four and three-quarters acres of this are used for irrigation. The cost of draining and grading was \$410. The flow averages about 30,000 gallons per day. No outlay is required for operation save for the regulation of the flow to alternate irrigation areas. Mr. W. B. Gerrish, the city engineer of Oberlin, has recently published an account of the arrangement of this work in which he says: 'Any one wishing to walk for recreation will find it an agreeable place to visit.' He publishes a series of analyses giving the composition of the original sewage and of the effluent of the underdrains by which the purified sewage is carried away; also the corresponding analysis of the sewage and effluent at Canton. These show that the chemical process removes 42.2 per cent of the sum of the ammonias, 50 per cent of the albuminoid ammonia and 65 per cent of the organic matter, and that the irrigation process removes 97.1 per cent of the sum of ammonias, 98 per cent of the albuminoid ammonia, and 95 per cent of the organic matter."

EXHIBITION OF THE VIENNA FIRE-DEPARTMENT.—In honor of the English Fire Brigade officers now visiting Vienna, their colleagues in that city, our correspondent says, arranged recently a very interesting performance. An imaginary fire was signalled to the central station, and all the engines, ladders and men were almost immediately on their way to the great depot on the Hof, which was supposed to be on fire. All the windows were opened, and while the building was flooded with water, the distressed lodgers appeared at the windows calling for help. They were firemen. Some were in women's night-dresses, with dolls in their arms to show how women are saved. Some jumped into outspread sailcloths, some slipped down long sack arrangements reaching from the highest stories to the ground. Then invalids were saved by firemen, who climbed up rope ladders and got into the burning rooms with masks to save them from the smoke. When everybody had been "saved" the Englishmen applauded heartily, and the officers shook hands with many of the firemen who had distinguished themselves. The English deputation afterwards climbed St. Stephen's Tower to see the system of watching for and signalling fires. The Englishmen are regarded as the guests of the Vienna Fire Brigade, and are made much of and taken to see all the sights of Vienna. — *London Daily News*.

GLASS-COLORING IN GERMANY.—The beautiful coloring of certain varieties of glass now produced in Germany, and which is said to far excel some of the most noted French specimens, is an art practised, by the glass-blower at the furnace, by means of an apparatus consisting of a sheet-iron cylinder, twenty inches long and eight inches diameter, standing vertically, and having a similar cylinder rivetted across the top. Kuhl's *German Trade Review* says that in the lower cylinder is an opening into which an iron ladle can pass, and the horizontal cylinder is provided with doors at either end, the one nearest the operator being so arranged that the blow-pipes can be supported when the door is closed in a horizontal split running to its middle, the object to be treated being held inside. While the glass-blower is reheating his work for the last time in the furnace, an attendant takes the long-handled iron ladle, which has been heated red hot, shakes into it about a spoonful of a specially prepared chemical mixture, and places the bowl of the ladle quickly in the opening provided for it in the vertical cylinder. The mixture immediately gives off vapor, which rises to the horizontal cylinders, where, meanwhile, the blower has placed his work, supported by the blow-pipe and heated to an even red, turning it rapidly in the vapor. In a short time the object is covered with a changeable lustre, is removed from the pipe and tempered like other ware in an ordinary oven, then cut, engraved, painted, or gilded as desired.

VIENNA'S UNDERGROUND ELECTRIC RAILROAD.—The Anglo-Austrian Bank and the firm of Siemens & Halske have submitted to the London Board of Trade a detailed plan for a Vienna underground railway. It is intended to be an electric narrow-gauge railway, with double rails, and should begin at the Danube Canal, pass under the Central City to where it touches the western suburbs, continue under the Maria Hilferstrasse to the western terminus, and thence to the outskirts of the town to Schonbrunn and Penzing. Between seventeen and eighteen minutes would be the time for getting from one end to the other. The railway would run directly under the pavement, without touching the foundations of the houses. A single carriage, to be started at short intervals, is meant to convey forty passengers in ordinary times, while in the morning and evening, and Sunday and *fête* days, two cars might be added. The Bank would begin to build the underground electric railway at seven points at once, and would complete it in a year from the day when the concession is granted. The Viennese, who have no means of communication in the central part of the city, wish this undertaking every success. — *Cincinnati Commercial Gazette*.



INTERIOR OF TREMONT TEMPLE

BLACKALL & NEWTON, ARCHT.



TEMPLE, BOSTON, MASS.

NEWTON, Architects.

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