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CONTENTS.



IF Americans would but adopt one very common European custom one of the peculiarities and perplexities of our social life would be seriously and perhaps beneficially modified, and the change would, in turn, have a very great effect on architectural matters. In almost every city of this country there is a certain large section—the business section—left practically deserted after nightfall, and the thousands who peopled it by day go elsewhere to their dwelling places in other parts of the city, the residential sections. This ebb and flow of humanity constitutes the most troublesome factor in the great street traffic problem, and this factor would be almost eliminated should we adopt the European method of having living apartments and mercantile premises occupy the same buildings. It seems as if before long the up-town movement in New York must stop and begin to flow back down the island, but at a higher level, taking possession of some portion of the vast amount of unoccupied space that exists down-town after business closes. The great factory districts and the wholesale districts must probably remain purely such, as indeed is the case in European cities, but there is no good reason why the retail-shop with apartments occupying the upper stories should not be the rule in this country as it is abroad. It is the uneasy retail shop-keeper who forces the change in our cities and gradually, or rapidly to speak more truthfully, transforms one-time agreeable residential districts into business sections. He pursues his customers, and they flee from him. He might keep them around him by making the upper stories of the building he occupies attractive places of residence. To do so however would be to fly in the face of the genius of American wastefulness.

A LARGE part of the fire-alarms are sounded within an hour of the shutting down of work in the business section: these are for incipient fires noticed by some of the late passers through the streets, and caused by the carelessly flung match used to light some clerk's cigar or cigarette as he hurries off to secure a place in the vehicle that is to take him to some far-away residential section. The more serious fires that declare themselves later are generally due to the same cause and started at the same hour but, unhappily, not chancing to be detected have had time to get under good headway before being discovered. In residential sections fires are comparatively rare and it is seldom that one gets under full headway before being discovered. It would be money in the underwriters' pockets if the universal sense of watchfulness and responsibility at all hours could be made to avail also in the business sections. But it could only be accomplished by adopting European methods and that for most cities, which can expand in any direction at will, is not likely to happen.

BUT people in the residential sections do not like to be driven from their chosen homes by the intrusion of the retail shop-keeper, and Boston has recently taken steps to preserve the *status quo* by a piece of legislation of very serious import, the final results of which it is not at all easy to forecast. Almost every one has seen with regret mercantile structures displacing the dwelling houses which used to surround the Common and Public Garden. People used to realize that the inhabitants of those houses had a most unusual and enjoyable outlook; they wished their own houses were equally well placed but they were not so envious as to wish that, since they could not themselves live there, nobody might have the benefit in their daily lives of the beautiful prospect in front. But that is what has resulted; the houses and their indwellers have gone and the shopmen who replace them have not time to think about and enjoy the beauties of the outlook. To check the encroachment of trade and to prevent the intrusion of sky-scrapers into the residential districts, a law was passed by the present Legislature enabling the city to define and establish for a period of fifteen years those parts of the city which shall remain residential and those which shall be business sections. The touchstone used in determining this question was the height-limit, and the law was drawn so as to allow the maximum height, one hundred and twenty-five feet, fixed by the present building-law to have application, as now, to the new business sections or "A districts," while a new maximum of eighty feet was fixed for the new residential sections or "B districts."

THE commission appointed by the Mayor went about its work in a very thorough way and occupied several weeks in taking testimony at advertised "hearings," each hearing being devoted to a different ward of the city in succession, so that the peculiar needs of each part of the city might be weighed on the evidence of those most familiar with its conditions and needs. Curiously enough these hearings, though well advertised and each causing some discussion in the

daily papers, seem not to have attracted to them as large gatherings of interested people as one would naturally have looked for, so that the evidence presented seems to have had a good deal of the negative quality about it. The Commissioners however did their part of the work fairly and thoroughly, finally filing their report in the Registry of Deeds for Suffolk County and by so doing putting the law into actual operation, and now for fifteen years the residential districts are safe from the encroachment of the extra-high building. Naturally, now that it is almost too late, real-estate men when they come to study the boundaries and limitations discover that bars to progress have been thrown across the way at unexpected spots; but as yet they are unable to make up their minds as to whether this checking of a progress that they are pleased to consider normal and natural may not actually produce a stagnation in real estate and building operations that may prove very unfortunate for the city as a whole. The law, however, allows a period of thirty days for the filing of objections to the new limits and the commission then has six months in which to decide whether it has been shown to be desirable to make any changes.

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THE necessity, to which we referred the other day, of being constantly awake as to the steps our lawmakers are thinking of taking, is well instanced by what has recently happened in San Francisco. It has seemingly needed the active protest of the San Francisco Chapter of the American Institute of Architects to prevent the Board of Supervisors—functionaries whose precise duties we are unacquainted with—from enacting that henceforward all schoolhouses in the city must be designed "in the Mission style of architecture." Everyone, probably, would agree that the old Mission church and its surrounding buildings are picturesque and architecturally interesting, and many would feel that some of the modern adaptations of this phase of a style in the designing of small buildings of the ranch or hacienda type have been very charming and successful. Having assented to these heads, architects generally would be apt to agree that, except in the igloo of Greenland or the pyramid of Egypt, it would be hard to find a type of building less adapted to modern scholastic purposes than these same Mission buildings. The originator of this idea, of course, could not have known that an atempt to design a modern schoolhouse "in the Mission style" must result simply in producing, effectively, a Jacobean building, and that is not what he was aiming at.

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THE advocates of municipal ownership who find in their theories a cure for most of the ills that afflict the public, we believe have pretty generally neglected to explain how the matter of damages for personal injury is to be handled. At present a person who suffers injury at the hands of any chartered corporation is reasonably sure of being able to collect damages, "handsome damages" if the matter happens to be left to a jury and the circumstances attending the accident are in any degree pathetic. How will it be when damages have to be paid out of the public purse and this replenished for the purpose directly from the pockets of the public itself? We fear that, were Boston, for instance, called on to defend as many damage-suits as are brought against the Elevated Railroad, the people would regret that they had undertaken municipal ownership of that property. Actually, municipalities are no more tender-hearted than corporations, as is shown by the city of Chicago's successfully defending a test-case for damages due to injuries at the Iroquois Theatre fire, when Socialistic theories should have constrained it to alleviate as much loss as possible by paying all claims without contest.

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IT is curious how persistently men feel that the idea of perpetuating a man's name and deeds must be embodied in a monument or statue, or at least a tablet. Of course, the real record is made in printer's ink in the hundreds of books and thousands of pamphlets that are found in libraries all over the world, and the erected monument is a mere reminder which often is so inadequate and ridiculous as to detract from rather than add to the reputation of the man to whom it is erected. The reputation of Major L'Enfant, the designer of the plan of Washington, is sufficiently embalmed in the printed pages of many a book and record, and, if there is need of more, the city itself answers the seeker who looks about for his monument. Still, as there are, unquestionably, people who never heard of the man or his connection with the lay-out of Washington, it is perhaps just as well that a monument to him should be erected to his further glory and for the benefit of guides and sight-seers. It seems to us, however, that there is nothing to be gained by disturbing his poor remains where they lie at Trigg's farm, just outside the city, and re-interring them beneath the proposed monument which was authorized by Congress last winter.

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FEW things attract more attention from a sidewalk gathering nowadays than a section of old wooden water-pipe when, in some of the older towns of the country, it happens to be uncovered during some street excavation. It seems colonial, if not quite mediæval, this section of log, still sound as when laid, still capable of conducting water in purity and by nature not subject to the subtle attack of electrolysis. It is this latter fact alone that, in our eyes, gives excuse for the modern revival of the use of wooden water mains and enables us to regard a certain plant in New York State that turns out twelve hundred running feet of wooden water main—or should we say water-logged main?—each day, as engaged in a legitimate, if not quite praiseworthy, business. At the establishment in question the tree trunk is put in a lathe and the sap-wood turned off; then the log is bored so that a solid core can be extracted in a single length and this in turn is bored to yield a pipe of smaller diameter, while its core is utilized for pickets and so on. There is really very little waste in the manufacture. The bored pipe is next wound with tar-coated hoop-iron so tightly as to bite into the surface of the wood, and then is hurried to its final resting place in the trench, where it is bedded in and covered by a thick coating of hydraulic cement concrete. The one object of these several manœuvres is to get the pipe covered up in dampness and darkness before seasoning has a chance to open cracks in it. Apparently, then, the uncovering of wooden water-mains in the future will not always disclose a piece of ancient engineering.

## AN ENGINEER'S SUGGESTIONS TO FIRE UNDERWRITERS.[1]

I HAVE been very much interested in Capt. Sewell's statements regarding the Baltimore fire.[2] I have visited these ruins three times, and spent four days in slowly going through room after room of those fireproof buildings, studying the effects of the heat on different materials, and in the eighteen years that I have been studying matters of fire protection I have never before found so excellent a school in which to study, or so many object lessons for showing what structural features to avoid in the future.

It appears to me that in those buildings one can find ample demonstration that *buildings can be made fireproof;* and that it is really possible to make adequate and certain provision against the exposure hazard. We have shown to us there more clearly than ever before the temperature obtained in a great conflagration. We have building materials of almost every kind tested in their resistance to fire under very nearly the same conditions.

### TEMPERATURE OF A CONFLAGRATION.

It is of great practical importance to know what the temperature is at great fires, for we can then regulate our testing furnaces to correspond, and this temperature is marked most beautifully in almost every one of those fireproof buildings in Baltimore by the fusing points of various materials.

In the ruins of the non-fireproof buildings, we also find much that is instructive as to the degree of heat. I had the good fortune to inspect these ruins accompanied by one of the leading steel-works engineers in the country, a man whose life has largely been spent as superintendent of some of the largest plants in this country, and is, from long practical experience, thoroughly well versed in the effect of heat on metals. It was our general impression arrived at independently that the temperature attained in the non-fireproof buildings, as shown by the radius of the curvature of the bent pieces of steel and wrought iron, and the appearance of much of the wreckage, was, in general, the temperature corresponding to a dull redness; but sometimes a little more than that, where fuel and air currents were favorable, but very rarely reaching the fusion point of the most fusible cast iron, and then only on exposed corners and over areas of a few inches.

In the wrecks of the non-fireproof buildings where fused metals were found, it was impossible to say if this had occurred before the walls and floors fell, or after the damage had been done and while the heat was more concentrated and confined and the effect more like that of a furnace.

The "fireproof" wrecks gave the best opportunity for study. In order to measure this temperature in degrees of the thermometer, I went through building after building with much care, taking specimens of metals that had been partially fused. I was interested particularly in the brass of the electric fixtures. I found that only rarely did the most intense heat of that great conflagration reach the melting-point of brass. It is safe to say that out of all the pieces of brass of various kinds, attachments to typewriters, railings and desk ornaments, hinges, locks, doorknobs, safe-handles, electric fixtures, and so on, that very much less than one per cent of all the brass exposed to the full heat of the fire, in rooms where everything combustible was reduced to ashes, was heated to the point of fusion.

In rooms containing extra large quantities of papers and filing cases like those occupied by the commercial agencies, or the filing rooms of some large offices, I found numerous places where the brass had been fused.

Since the melting point of brass varies with its chemical composition, I brought home specimens, and took them to the Research Laboratory of the Massachusetts Institute of Technology to have the melting temperature of that particular brass measured. In the case of the thin rolled brass of the electroliers, an average specimen, which had been fused at one end only, showed that the extreme heat of the conflagration in the midst of the room from which it was taken was about eighteen hundred degrees Fahrenheit.

By digging around among the ashes, I could occasionally find a brass hinge or a transom fastening of brass that had been fused, but in only a few cases had their fusion point been reached. Those were of soft cast brass, and a representative specimen tested by Prof. Warren in the Technology Laboratories, showed a melting-point of about sixteen hundred and fifty degrees Fahrenheit, as marking the extreme temperature in one of the hottest parts of the conflagration.

From observations at many points about these fireproof buildings, it appears safe to say that the extreme heat seldom exceeded 1,600 to 1,800 degrees, and was commonly less, and as one lesson from the Baltimore fire I should say that 1,700 degrees Fahrenheit maintained for one hour was a fair general standard for the testing furnace of an Underwriters' Laboratory, with about 2,100 degrees as the extreme limit over small areas and for a short time.

Another feature which very distinctly marked the extreme temperature reached was the melting of the window glass. Throughout the hottest rooms of most of the fireproofed buildings, the window glass had softened enough to bend. In only a comparatively few cases had it melted sufficiently to run freely. I remember one window in the Calvert building where the glass had apparently been heated to the point that it had run over the sill, almost as water would run, and in the *Herald* building a large sheet of wire-glass from the skylight had fallen across a bar, in about the shape that a wet limp cloth would assume.

I brought back, for test, a piece of plate-glass from the hot side of the Union Trust Company building, which had fallen onto the wheel of a copying-press, and draped itself around it in a way that served to show how soft and plastic it had been.

A laboratory measurement of the heat at which that piece of glass became softened, enough to bend in this manner, gave sixteen hundred degrees Fahrenheit. The same glass became nearly fluid at a little above 1,650 degrees Fahrenheit.

I looked particularly for evidence of the melting of cast iron in these fireproof buildings, and only in two, or possibly three, cases did I find an instance where cast iron had been heated to the fusion point.

There is much difference in the fusing points of different irons and steels according to the percentage of carbon that they contain.

At what had apparently been the hottest place in the Continental Trust Company building, and also at the Calvert Building, the corners of a cast-iron radiator had begun to yield, and in the Maryland Trust Company building there was a small corner of a copying-press on which there was also evidence of incipient fusion.

Out of the hundreds of typewriter frames that I noted among the ruins there were in all, perhaps, a half dozen where a little fusion of cast iron was apparent on the corners of the frame, but the great majority, or in nineteen out of twenty of the typewriters, the fusion point of cast iron had not been reached.

A specimen that I brought back, of partly fused cast iron from a radiator, melted at somewhere between 2,000 and 2,050 degrees Fahrenheit.

### FIRE-SHUTTERS.

A point which interested me exceedingly, in studying the Baltimore ruins, was to see whether thin wrought iron or steel plate, such as is used for covering fire-shutters, had at any point been heated to a point where its power or resistance was seriously impaired. The ordinary Underwriters' fire-shutter depends for its strength and its resistance upon its thin covering of very soft mild steel coated with tin. I examined thin sheet-steel lampshades, thin bands for pipe coverings, tin boxes, filing cases, and dozens of shutters themselves. In no place did I find any indication that metal of that quality had been so softened, or had reached such a heat that it would be seriously impaired for the purpose of fire-shutters, and one of the great lessons that I brought away from the Baltimore fire was that our standard tin covering for the Underwriters' shutter is all right, and that this covering material has sufficient power of resistance to withstand the fiercest heat of a great conflagration, but that we do need to find some better material than pine wood to fill it with. I also made careful examinations of copper in flashings, cornices, etc., to see if it had melted. In a few small spots in rare instances fusion had begun, but in general I found it had ample resistance to fusion, so that it can prudently be used for covering fire-shutters, where something more ornamental or weather-proof than tinned plate is desired and expense is no bar.

The Standard Underwriter Shutter of wood covered with tin did not give a very good account of itself in the Baltimore fire, and I think it can be said, without fear of serious contradiction, that the endurance of the ordinary Underwriters' shutter of tin-clad wood is limited to not more than about half an hour's endurance of a temperature of 1,500 degrees, and that this limit is often passed in the heat of an ordinary conflagration, and that

[1] Address of Mr. John R. Freeman, Consulting Engineer, Providence, R. I., at the Annual Banquet of the National Board of Fire Underwriters, Delmonico's, New York, May 12, 1904.

[2] See *American Architect* for July 9.

in many of the cases where single doors or shutters have shown up so well there has happened to be an incoming air current that has helped to cool the shutter.

The limitations of the tin-clad wooden shutter were shown at one corner of the burned district in Baltimore. A large shirt factory, whose windows were protected by wooden fire-shutters, had a very close call. By heroic efforts, with private pump and hose streams, the employes saved the factory. I took particular interest in examining those shutters, and although this was not at the hottest part of the fire, I found, in parts of the shutters at the hottest exposure, that the pine wood was charred entirely through and all gone.

This matter of better shutters is one on which we should set some of our best talent at work in the experimental way. In your excellent laboratory in Chicago there is excellent apparatus for the needed tests. Although the present shutter and the present approved form of fire-door is all right nine-tenths of the time, and perhaps nineteen-twentieths of the time, it is not all that we need in a great conflagration.

I have said that buildings can be made fireproof against bad exposures. The possibility of making them so is found largely in the development of a superior thin form of fire-shutter, and in educating the architects and owners of buildings toward building a shape of window that is easily protected by the fire-shutter, and a neat window-jamb formed to receive this shutter when folded back *inside the window.*

Windows of suitable size for all ordinary office purposes can easily be so designed that they can be protected by fire-shutters, and that the shutters when open and folded back on the inside will not be obtrusive or unsightly. When a bad exposure-fire comes the ruin of the sash and glazing can be paid for cheerfully if the contents of the building are saved.

I was very much interested in the efficiency of the plain steel-plate shutters on the inside of the windows in the Safe Deposit and Trust Company building. These kept the fire out very successfully, notwithstanding that the large non-fireproof building of the *Baltimore Sun*, which was entirely wrecked, and was one of the hottest parts of the entire conflagration, was only ten feet away. The damage was so imminent that the police ordered the men to leave the Safe Deposit Building and the heat melted the lead sash-weights within the cast-iron window-casings, destroyed the sash and glass, and chipped the brick walls, but the damage on the interior of the building was almost nothing. These steel-plate shutters were so set that they were free to expand, and they were free from ribs, and of a form not likely to warp much, and they did in fact warp but little, and the casing and jamb were of such form that this warping of the shutter off its seat did not open a wide crack, and there was no combustible material near them on the inside to receive their radiant heat.

Capt. Sewell, if I understood his remarks aright, suggested a steel shutter stiffened by ribs.

Ribs are dangerous unless very carefully designed, and attached, and, as generally applied, increase the liability to warp.

I happen to have been an eye-witness of the fire twenty or twenty-five years ago that gave to the tin-clad shutter its great start on the road to popularity. This fire was in the Pacific Mills, at Lawrence, Mass. In that case there was a tin-clad wooden fire-door, of what has since become standard construction, standing immediately beside a steel-plate shutter that was heavily ribbed on the edges. Apparently it was a fair comparative test for the two shutters. The ribbed steel shutter warped away from its bearings two inches or three inches, as I now remember it, in a way that let the fire play freely around its edges, while the tin-clad wooden shutter remained in place without warping and was in good working order when the fire was over, the tin covering intact and the wood charred only about half an inch deep. These results were published far and wide, and this gave the first great impetus to tin-clad wooden shutters.

There have since been hundreds of demonstrations of the endurance of tin-clad shutters in fires, and I have taken advantage of many opportunities to examine carefully into the conditions under which they have been exposed. The result of these examinations has been to convince me that the endurance of the tin-clad shutter is limited; that its limit of endurance is often passed; that for severe cases we do need something better than the ordinary underwriter's tin-clad wooden shutter, and that we do need something very much better than the ribbed steel shutter or the rolling jointed steel shutter.

At present the best we can do in any important case is to use two fire-shutters or fire-doors, one outside and another inside; one will receive the brunt of the onslaught, and perhaps in the course of half an hour or an hour warp or break down; the second, shielded behind the first, will stand up to its work until any ordinary fire is over.

It seems to me that the main reason why those steel shutters in Baltimore, at the building which I have just mentioned, performed so well was that they were free from ribs, and thus became heated more uniformly, with but very slight warping; that they happened to be so fastened to a frame that they were free to expand, and their seat happened to be of such a shape that, although the shutter did warp a little, this did not open much of a crack, and that there was no combustible material close to them on the inside.

The path of safety from exposure-fires for office-buildings and the like, lies in a window casing formed so that we can attach to it a shutter of a form similar to the ordinary inside house-blind. Our ordinary business buildings have walls thick enough, so that by making the shutter in four folds, or leaves, two being hinged together, and these two in turn attached to the wall, making each fold in the shutter only about fifteen inches wide, the window will be wide enough for all practical purposes, and we can fold the shutter back within the window jamb, very much as we do the inside blind.

To do that with the present ordinary tin-clad shutter would be almost impossible, because of the thickness of that form of shutter. It can be done with a steel-plate shutter without ribs, and the radiation from the inside can be checked by some thin incombustible porous covering like asbestos board. If in our underwriters' laboratories, in our technical schools, and in our tours of survey we can direct attention to these views and urge the solution of the problem of how to make an efficient fire-shutter which shall only be three-quarters of an inch or an inch in thickness, I believe that before long the problem of protecting an office-building against exposure-fires will be found solved.

It is entirely possible to design a window opening adapted to receive a safe shutter, so that it will be just as convenient for ordinary business purposes as the type now common. I think it probable that the best place for the shutters is *inside the glass,* sacrificing the glazed sash outside them in case of any great conflagration.

### "WATER CURTAINS" AND "WIRE-GLASS."

We hear a good deal nowadays about "water curtains," and I would like to say just a word on that, because I think there is a great deal of misapprehension about their efficiency. I would like to say a word about wire-glass also, because although in general excellent, I think there is a great misapprehension as to what wire-glass can do.

I began experimenting with wire-glass very soon after it first came out, and I have used it in numerous instances, and it is a most excellent material in its way, but it has its limitations; it has the same limitations that a water curtain has, and that is, that it does not stop the passage of radiant heat.

You all have noticed how, when you are travelling in a railway train, perhaps at sixty miles an hour, and they happen to be burning a pile of ties along the track, that although your face is directed toward your newspaper, you will feel the flash of heat passing through the car window and striking against your face as you go past that pile of burning ties. That simply illustrates the great ease and rapidity with which radiant heat passes through glass.

Now, radiant heat passes through glass with wire netting in it almost as easily as it does through any other glass, and the record made by wire-glass in a certain building in Baltimore, which is pointed to with so much pride, is, I think, simply due to the fact that it was at a place where nothing combustible was immediately behind it. If you have a stock of dry goods, or wooden ware, or baled cotton or hemp just inside a wire-glass window without shutters, and there is a hot fire across the street, these can probably be set on fire with much promptness by the radiant heat passing through the glass, and the subject should be thoroughly studied on a large scale in our underwriters' laboratories. For safety, there must be something which will stop the radiant heat, and that can only be in the form of a shutter, and, by virtue of stopping the heat, the shutter will become hot.

The case with the water curtain is very much the same as with the glass. Water is diathermous, as physicists call it—that is, radiant heat passes through water very easily.

We must, I believe, set down these stories that have been told about the efficiency of water curtains as being mainly fairy tales.

This supposed efficiency of the water curtain is another topic which I hope that some one of our underwriters' laboratories and

some of our schools of applied science will take up and investigate with precision of measurement.

I have heard stories of the wonderful efficiency of the water curtain, but I must beg to disbelieve them, largely on theoretical grounds as yet. It is a matter which can be tested very easily.

The window sprinkler came in for a good deal of praise in certain quarters in Baltimore. I took particular pains to investigate that, because I wanted to find just how far they merited it, and I have no doubt they did some good, but they are not entitled to anything like the glory that is claimed for them. They will tell you a great deal about the remarkable work done by the window sprinklers in the Toronto fire. Now, I sent a bright young engineer up there especially to investigate that question and to go into it in detail, and to take photographs of the individual windows and to get right down to the bed-rock facts, and, from the mass of evidence that he brings back, I do not doubt that they did some good; but *the inside ordinary automatic sprinkler near each of these windows did very much more good.*

In short, if you want to provide against an exposure-fire, I believe that the only way to do it is:

First, by a wall either of brick or cement concrete.

Second, by properly designed window openings and window casings; and

Third, by good shutters in those windows.

In the absence of shutters, automatic sprinklers, supplemented by heroic efforts with hose streams on the inside, may sometimes save the day, with great expense for water damage; but where exposures are bad, a good shutter on a proper window should be the first care of architect and owner.

### FIRE RESISTANCE AND PLASTER OF PARIS COMPOUNDS.

I have a word to say about "limotile" [lime of teil] and about plaster of Paris or gypsum mortar for interior finish. In going from room to room in the different buildings in Baltimore, it was very noticeable how completely plastering, of which gypsum or plaster of Paris was the base, had peeled off. The complete failure of "limotile" was also very interesting. I brought back some samples of the "limotile" from the Equitable building and from the *Herald* building for analysis and fire test. It was found that this "limotile" was about 33 per cent plaster of Paris and the remainder apparently coal ashes, with perhaps some sand. Plaster of Paris gives off its water of combination under a heat slightly below 500 degrees Fahrenheit. That is a very moderate temperature for a fire, and away below the temperature found in most rooms that are well on fire.

Anything that will go to pieces at 500 degrees temperature is unworthy of being classed as a fire-retarding material.

The resistance to heat offered by plaster of Paris compounds used as mortars is a most fruitful topic for study in our laboratories.

I was particularly struck by the weakness of the "limotile" partitions in the Equitable building, and if anyone will go through the Equitable building and see how thoroughly those "limotile" partitions failed, how the "limotile" ceiling failed, they will have such an ample practical demonstration that, in their case, no laboratory test will be needed as to the folly of depending on any material for fireproofing which is largely composed of plaster of Paris.

### FIRE RESISTANCE OF PORTLAND CEMENT.

The behavior of Portland-cement compounds was in marked contrast to the plaster of Paris compounds.

We are just now entering upon what in engineering may be termed the Portland Cement Age. It is remarkable that in all these years that we have been using this material, it is only within the past five or ten years that we have begun to duly appreciate its real possibilities.

After studying the Baltimore ruins, I am very optimistic on the fire-resisting quality of Portland-cement construction, more so than Captain Sewell is, I suspect, from some of his remarks of a few moments ago. One great advantage of Portland-cement concrete construction is that if you put it in wet and soft, and almost semi-fluid, it will fill the voids and leave no bad "blow-holes" or cavities, even under mediocre care and incompetent supervision. The careless workman thus has less chance to get a poor joint than in brickwork. With the modern finely-ground cements, if a slight excess of cement is used above that theoretically needed to fill the voids between the grains of sand, and, if the whole is thoroughly mixed, as it can be easily by modern machines for this purpose, it excludes air and moisture and opportunity for corrosion. The Portland-cement concrete possesses far greater tensile strength and shearing strength than the best brickwork, and, in brief, I believe that it presents a material for fire-resisting construction which is not excelled by anything yet known.

Some experiments have been recently carried on in Boston which indicate that Portland cement is the best known substance for protecting steel against corrosion, and I have been very glad this evening to hear Captain Sewell speak such a good word for filling everything around the steel frame up solid with cement mortar—putting it around the main steel columns of buildings—placing the cement everywhere in close contact with the steel.

That air spaces around steel frames are a delusion and a snare was shown repeatedly in the Baltimore fire; and there is no way in which you can so thoroughly protect your steel work against corrosion, no way in which you can come so near to making a tall steel skeleton building endure like one of the pyramids of Egypt, as to thoroughly encase the steel work in good, rich Portland-cement concrete. The excess of alkali seems to be just what is needed to prevent the tendency to corrosion.

In my practice as an hydraulic engineer, I have had opportunity to inspect the condition of much steel, while it was being torn out, after from ten to twenty years' use, in cement-lined water-pipes. Presumably, every insurance man detests the cement-lined water-pipe, because of the way it gets struck by lightning, and the way it sometimes has of letting go when the man shuts off a hydrant too quickly, and because of the frequency of shut-offs for repairs in systems not originally faithfully put down, when they become old; but it has done good service in helping to teach the value of Portland cement as a preservative for steel. I have in general found that where the Portland-cement mortar was sufficiently rich in cement, and was put in close contact with the steel or iron pipe-shell, that the steel or iron was commonly as fresh and free from rust as the day it was put into the trench. The rust holes nearly all appear to come where the work has been slighted, the mortar poor, or not applied in close contact to the steel.

### NON-CONDUCTORS IN FIREPROOF SAFES.

The general failure of the common portable fireproof safes in the Baltimore fire was very noticeable.

Here is another problem for the underwriters' laboratory staff.

The contents of fireproof safes have, perhaps, not been so frequently an article of insurance in the past as they will be in the future by those men of Baltimore who had safes in that fire. It was really a pitiable sight to go through those ruins and see the large proportion of fireproof safes that had failed to preserve their contents. More than 75 per cent, at a guess, of the common portable safes had failed. This is not to be wondered at when one considers the ordinary construction. If one will examine the magnesia steam-pipe coverings in the same rooms in which safes had failed, he will see many that were only an inch in thickness that endured well and protected what was inside. These point an easy way for preventing the heat from reaching the contents of a safe so quickly. Simply provide an inch or two of magnesia slab inside the cement structure of the safe and avoid continuity of metal to the interior.

If the gentlemen here would furnish the funds and the safes, I am sure we could promptly find half a dozen places in this country where there is already just the kind of laboratory needed for testing them. The "soaking-pit," as they call it, in any great steel-making plant, like that at Sparrows' Point, or that at South Chicago, for example, where they take the great hot ingots and store them for several hours in a great covered pit heated to a glowing yellow heat—a heat far above the temperature of a great conflagration—furnishes excellent conditions for a thorough test, with cranes of ample power for lifting the safes in and out.

Take two safes built in different ways. Put books, papers, wood, fusible alloys and a recording thermometer inside of each. Expose them to that heat for half an hour and then pull them out; or, again, for an hour and then pull them out, and then for two hours and pull them out, and much will be added to the general knowledge of how to build a safe that is safe.

It would detain you too long to hear more lessons from the Baltimore fire, but the man who is interested in studying fire-protection engineering can find no better school to-day.

---

A Discovery at Carthage.—A statue of "Apollo" of colossal size and almost intact was discovered lately on the site of the Roman theatre at Carthage, a building which is frequently referred to by Tertullian and St. Augustine. Apuleius, the philosopher, used to declaim in the theatre.

## THE LEGAL ASPECTS OF THE TRADES UNIONS AND TRADE DISPUTES BILL, 1904.—I.*

THIS Bill, presented by Sir Charles Dilke and supported by Mr. Keir Hardie, now before Parliament, describes itself as a bill "to legalize the peaceful conduct of trade disputes and to alter the law affecting the liability of trade union funds." The object and intended effect of the four operative sections of the Bill are hardly intelligible except to those who have followed the recent decisions of the courts in cases which have arisen out of the action of trades unions. The legalization by Parliament of trades unions in 1871, and the passing of the Conspiracy and Protection of Property Act of 1875 with the object of rendering criminal certain acts done in furthering trade disputes, have given rise to many decisions as to the civil and criminal liability to which certain actions of trades unions may expose the unions themselves or their members. In fact, it would not be going too far to say that we may find in the Acts of Parliament and in the decided cases upon this subject, if not a new branch of the common law, certainly new applications of the principles of the common law. And, as often happens, the necessity of applying those principles in some detail to new facts has brought out the full significance of the principles themselves. This bill, then, like many Acts of Parliament already on the Statute Book, is brought forward in order to change the law as it has been laid down in certain decisions of the courts. We shall state each of its sections and estimate the effect which each section may be expected to have upon the existing law.

The first section deals with the civil liability of the members of trades unions for acts interfering with a business or with existing contractual relations. It enacts that "where an act is done in contemplation or furtherance of a trade dispute, the person doing the act shall not be liable to an action on the ground that by that act he interfered, or intended to interfere, either with the exercise by another person of his right to carry on his business, or with the establishment or continuance of contractual relations between other persons; provided that nothing in this section shall exempt such person from liability on any other ground."

In the first place, we may remark that the bill contains no definition of the term "trade dispute," nor is the meaning of the term "act done in contemplation or furtherance of a trade dispute" quite obvious. Does it mean any act which actually gives rise to a "trade dispute," or an act which may reasonably be expected to give rise to such a dispute, or an act which the party doing the act thinks may give rise to such a dispute? The same terms are used in the first section of the Conspiracy and Protection of Property Act, 1875, in relation to criminal liability for conspiracy. But they have not as yet been defined,[1] and they may well be more difficult of definition when they come to be applied to civil actions. Clearly there is much scope for litigation in these vague terms. To understand the rest of the section it is necessary to state shortly the effect of the cases which have defined the extent to which interference with modes of business, and with the existence and establishment of contractual relations, may be carried. These cases at bottom turn upon a difficulty which the trades unions have always experienced—the difficulty of making a strike effectual when a supply of non-union labor can be obtained. This difficulty cannot be described more clearly than Lord Lindley has done in the case of Lyons & Sons *v.* Wilkins:[2]

"Of course one sees the difficulty in which all these trade unions find themselves. Strikes and trade unions which were formerly considered illegal have now been legalized . . . and a strike can be conducted up to a point with perfect legality. That is to say, persons can not only decline individually to work for a master except upon terms which the workmen desire to obtain, but they can combine to do that. They can combine to leave him; they can strike unless he will raise the wages up to what they desire, and trade unions which assist them in withdrawing their own labor and declining to work, and which assist them in supporting themselves during the strike, can legally do so. Then arises a difficulty, which is as well known to those who conduct trade unions as it is to the masters and to all persons who have experience in these disputes, and it may be put thus: 'If that is all we can do we may be defeated by the masters making arrangements with other people who may be willing to work for them, either by taking the work home, or by working for less wages than we think is right, and unless we can stop that our strike may be ineffective.' Then comes the struggle. . . . Some strikes are perfectly effective by virtue of the mere strike, and other strikes are not effective unless the next step can be taken and unless other people can be prevented from taking the place of the strikers. That is the pinch of the case in trade disputes."

Under the existing law a trade union cannot prevent a man from working upon such terms as he chooses. In fact, the existing law carries out the ideas of the Royal Commission on Trade Unions, which reported in 1869: "We think," runs the report, "that whilst conceding to such workmen as desire to exercise it an extended right to combine against their employers, especial care should be taken that an equal right be secured to those workmen, who desire to keep aloof from the combination, to dispose of their labor with perfect freedom as they severally think fit. . . . The workmen who think it for their advantage to combine together in the disposal of their labor are no more justified in constraining any other workman who does not desire such association to combine with them—to bring his labor into common stock, as it were, with theirs—than an association of capitalists in constraining an individual capitalist to bring his capital into common stock with theirs; and it is the more important that the law should protect the non-unionist workman in his right to freely dispose of his labor as he thinks fit, because standing alone he is the less able to protect himself." The law as it has been laid down by recent cases may be thus summarized:

1. Peaceable persuasion, unaccompanied by threats or other unlawful action not to enter into contracts with a certain person, is perfectly lawful (Allen *v.* Flood).[3] A man has a perfect right, whatever be his motives, to try to persuade another either to contract or not to contract with another. As Lord Herschell put it in Allen *v.* Flood.[4] "A landowner persuades another to sell him a piece of land for which a neighbor is negotiating. It is so situated that it will improve the value of the property of whichever of them obtains it. His motive is to benefit himself at his neighbor's expense; he induces the owner of the land not to contract with his neighbor. Would it be possible to contend that an action lay in such a case?" In thus exercising his powers of persuasion a man is only exercising his own rights.

2. It has been laid down in a long line of cases that persuasion to interfere with existing contractual rights—persuasion, that is, to break an existing contract—is always actionable unless there is some lawful justification or excuse.[5] We may take as an instance of the operation of this rule a case decided last year, Glamorgan Coal Company *v.* South Wales Miners' Federation.[6] In that case miners employed upon collieries in South Wales abstained from working on certain days called "stop days," in breach of their contract with their employers. In so doing they acted under the orders of the Miners' Federation. The Court of Appeal held that an action lay against the Federation and its officials. The question what will amount to such a lawful justification or excuse as will justify persuasion to interfere with existing contractual rights is a difficult one. It is not difficult to put cases in which such a justification would clearly exist. For instance, if a father had discovered that his child had entered into an engagement to marry a person of immoral character he would be clearly be justified in persuading the child to break his or her contract. It is hardly possible, however, to give an exhaustive definition of all the cases where such justification exists. Much must be left to the good sense of the tribunal; and in coming to a conclusion "regard might be had to the nature of the contract broken, the position of the parties to the contract, the grounds for the breach, the means employed to procure the breach, the relation of the person procuring the breach to the person who breaks the contract, and also to the object of the person in procuring the breach."[7] But the mere fact that the person procuring the breach had no personal animus against the person injured by the breach; the mere fact that it is to the joint interest of the person who procures the breach and of the person breaking the contract that a breach should occur, is no sufficient justification or excuse. There must exist not merely an interest; there must exist also something akin to a duty to give the advice by virtue of the relationship existing between the party who advised the breach and the person who broke the contract.

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* A paper by Professor W. S. Holdsworth, D. C. L., Barrister-at-law, published in the *Architect*.

[1] See remarks of Lord Lindley in Quinn *vs.* Leathem, L. R. 1901, A. C. at pp. 541, 542.

[2] L. R. 1896, 1 Ch. at pp 822, 823.

[3] L. R. 1898, A. C. 1.

[4] *Ibid* at p. 127.

[5] The series began with Lumley *vs.* Gye, 2 E. & B. 216.

[6] L. R. 1903, 2 K. B. 545.

[7] *Ibid*, at p. 574, per Romer, L. J.

3. If persuasion either not to contract or to break an existing contract goes beyond mere persuasion, if there are elements of terrorism and coercion, an action will in all cases lie against the person who has employed such means to prevent the establishment or continuance of contractual relations. The right of action in such a case is grounded rather upon the means employed than upon the result designed. This proposition is illustrated by the case of Quinn *v.* Leathem.[1] In that case an action was brought against the appellant Quinn and four other defendants, all of whom were officials of the Belfast Journeyman Butchers' and Assistants' Association. The plaintiff Leathem was a flesher who employed non-union men. For the last twenty years Munce, a butcher, had bought of Leathem about 30*l.* of meat weekly. The defendants threatened to call out Munce's men if he continued to buy his meat from Leathem. In consequence Munce ceased to deal with him. The House of Lords held that Leathem had a good cause of action. "The defendants," said Lord Lindley,[2] "were doing a great deal more than exercising their own rights; they were dictating to the plaintiff and his customers and servants what they were to do." To have denied a right of action in such a case would, in the opinion of the same learned judge, be to "hold that boycotting by trades unions in one of its most objectionable forms is lawful."[3] The practical effect of this decision was well summarized by Romer, L. J., in a case decided last year.[4] "If a person who, by virtue of his position or influence, has power to carry out his design, sets himself to the task of preventing, and succeeds in preventing, a man from obtaining or holding employment in his calling, to his injury, by reason of threats to or special influence upon the man's employers, or would-be employers, and the design was to carry out some spite against the man, or had for its object the compelling him to pay a debt or any similar object not justifying the acts against the man, then that person is liable to the man for the damage consequently suffered. The conduct of that person would be, in my opinion, such an unjustifiable molestation of the man, such an improper and inexcusable interference of the man's ordinary rights of citizenship, as to make that person liable in action."

(*To be concluded.*)

## A RECENT NEW JERSEY DECISION AND THE ILLINOIS LICENSING BOARD.

IT is stated in a recent publication that a decision handed down by the Supreme Court of New Jersey is being used by some papers as an argument against the laws which prevail in some States providing for the licensing of architects.

In the case referred to the Board had refused the application of Newman H. Raymond, of Jersey City, for an architect's license. The ground assigned for refusing to issue a license was that Mr. Raymond was not an architect, but merely a builder. After reviewing the facts the court set the decision of the Board aside and ordered a license to be issued. The result of this case is not to be wondered at, if one reads the law of New Jersey relating to such matters. Section 10 of the law says:

> "Any person who shall at the time of the passage of this Act be engaged in the practice of architecture in this State, and who shall present to the State Board an affidavit to that effect . . . . . shall be entitled to receive such certificate upon the payment to the said Board of a regular fee of $5."

It will be seen by this that the Board has no discretion in such cases, and was obliged to grant all the licenses applied for at the time the law went into effect on July 1, 1902, on presentation of an affidavit from the applicant. The New Jersey law further states in Section 12:

> "Any person whose certificate shall be refused or revoked by said State Board shall have the right to appeal by *certiorari* to the Supreme Court for a review of such action, and the Supreme Court is hereby authorized and empowered to review and correct the action of said State Board, and the State Board shall forthwith carry out the judgment of the Supreme Court on such review."

The decision thus rendered under these clauses can have no bearing upon the efficiency of the Illinois law, which was passed in 1897. That law gave the State Board discretionary power in such cases, and this discretionary power in granting licenses to those who claimed to be practising architects at the time the law went into effect was sustained by the Appellate Court of Illinois in its decision of the case of Harbers *vs.* the Illinois State Board of Examiners of Architects rendered October 2, 1900. The claim of Harbers for a license was based on exactly the same grounds as those made by Raymond in New Jersey. In its decision the court quoted the language of the law in the following sentences:

> "In the language of the law a person desiring a license without an examination must by affidavit show to the satisfaction of the State Board of Examiners of Architects that he or she was engaged in the practice of the profession of architecture on the date of the passage of this act. This certainly leaves some discretion to be exercised by the Board, and while a mandamus would lie in a proper case to compel the Board to act upon an application, yet, in the absence of a wrongful abuse of power, amounting to a fraud against the rights of the applicant, it would not lie to compel its members to decide in a certain way."

Neither does this decision in New Jersey have any bearing upon the constitutionality of laws for the licensing of architects. It applies only to the individual case in question, and would not have arisen had the New Jersey Board been vested with discretionary power, as is the case in Illinois.

All attempts thus far made to dispute the authority of the Illinois Licensing Board have fallen to the ground.

PETER B. WIGHT,
*Secretary Illinois State Board of Examiners of Architects.*
July 6, 1904.

[1] *Ibid.* 1901, A. C. 495.
[2] L. R. 1901, A. C. at pp. 536, 537.
[3] *Ibid.* at p. 542.
Giblan *vs.* National Amalgamated Laborers' Union, L. R. 1901, 2 K. B. at p. 620.

## ILLUSTRATIONS

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

RESIDENCE OF MAJOR R. DICKINSON JEWETT, WASHINGTON, D. C. MESSRS. MARSH & PETER, ARCHITECTS, WASHINGTON, D. C.

GENERAL STORE BUILDING FOR THE SHEPARD GROCERY, FRANKLIN, N. H. MR. FRANK A. BOURNE, ARCHITECT, BOSTON, MASS.

INDEPENDENT METHODIST CHURCH, BOLTON, ENGLAND. MESSRS POTTS SONS & HENNING, ARCHITECTS.

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INGRAM HOUSE, LONDON, ENGLAND. MR. ARTHUR T. BOLTON, ARCHITECT.

THIS plate is copied from *Building News.*

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**Additional Illustrations in the International Edition.**

PUBLIC LIBRARY, MILTON, MASS. MESSRS. SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS, BOSTON, MASS.

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INDUSTRIAL SCHOOL FOR CRIPPLED AND DEFORMED CHILDREN, BOSTON, MASS. MESSRS. PEABODY & STEARNS, ARCHITECTS, BOSTON, MASS.

FONT IN THE CHURCH OF ST. AGNES, NEW YORK, N. Y. MR. W. A. POTTER, ARCHITECT, NEW YORK, N. Y.

## NOTES & CLIPPINGS

THE SUPPLY OF FUEL PEAT.—Peat briquettes, all heat except a pinch of ashes, can now be made by improved processes for $1.21 a ton. The peat supply increases proportionately with the distance from the equator. In cold and wet countries, the climate does not well do the drying, and methods have consequently

to be resorted to. So prepared, there is peat enough distributed here and there in the world to conduct a substantial civilization on for an indefinite succession of centuries. Alaska has plenty of it, and so has Siberia, with ample deposits in other far Northern countries. Sweden already uses two million tons of the briquettes yearly, and within fifty miles of Chicago are deposits of the material sufficient to supply the city with fuel for a period to come, perhaps as long as it may have any use for fires or domestic hearths to light them on. One-seventh of the area of Ireland consists of peat bogs heretofore not to be profitably worked, but by the new process made as valuable as coal mines.—*N. Y. Tribune.*

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Reconstructing the old Croton Aqueduct.—As under the new conditions incidental to the completion and filling of the new Croton reservoir, the external pressure to be resisted by the old Croton aqueduct may sometimes be twenty pounds to the square inch, it has been determined to reinforce the structure, and to replace by detours on firm ground such portions as are built on embankments. The work is being done under the supervision of J. Waldo Smith, chief engineer. The embankments are five in number, as follows: Orser's brook, 294 feet; Bailey's brook, 621 feet; Purdy's brook, 137 feet; Spring brook, 304 feet; McCord's fill, 251 feet. These detours are in reality concrete conduits, running parallel to the old aqueduct and at a distance of fifty feet from it and call for about 1,600 linear feet of new conduit to be built. There will be no reconstruction, only repairing and reinforcing of 13,800 feet of the old aqueduct lying between the old and the new dam. The old aqueduct is being repaired by replacing the brick key in the arch, where required, and laying a continuous reinforcement of concrete over the arch and in the invert. The latter work was first accomplished. The arch was cut through at points 360 feet distant from each other, and each way was built the invert reinforcement—an eight-inch layer of 1:2:4 concrete composed of "Giant" Portland cement and two-inch broken stone mixed very wet by hand. The bottom of the aqueduct was thoroughly cleaned and dried, and the concrete was bonded to the brickwork by means of holes twelve-inch in length, seven and one-half in height, and about four at the bottom, cut through the first course of bricks in the side wall. The sections in which the reinforcement was made were eight feet wide, at intervals of four feet. About five cubic feet of concrete per linear foot was used. Only in a few places in the old aqueduct was the masonry faulty, and at these spots about 150 linear feet only of new brick key has been called for. Where the old aqueduct had been reinforced by concrete, nothing was disturbed; otherwise new concrete is placed on the outside, and throughout is laid so as to form a continuous monolithic mass from springing line to springing line, with all joints made transversely to the axis of the conduit. The length of the sections is from ten to fifty feet. The concrete required in the work of reinforcement is seventeen and one-half cubic feet per linear foot, and the total amount is about 20,000 yards.—*Fire and Water Engineering.*

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"Dead" Churches in London.—In London, as in many other large cities, the demands of church-goers for places of worship in the heart of the city are very limited. The *Express* recently investigated this matter, and its representative visited ten churches within the business limits of the City and found congregations totalling only 213 where there were seating accommodations for 3,750. The church property thus visited would bring in the market, at a moderate estimate, $2,500,000, and there is a crying need for more churches in many of the residential sections of London, churches that could be built with this money. In one church in the heart of London, between Queen Victoria Street and Cannon Street, where there is a seating capacity of 400, the attendance at the morning service consisted of four persons—three women and one child. In another church, on Bread Street, with a seating capacity of 300, there were four men and six women. At St. Helen's, Bishopsgate, with a seating capacity of 600, only three men, six women and two children attended the morning service. In the ten so-called "dead" churches the total attendance amounted to less than 6 per cent of the seating capacity—that is, of 3,750 seats, 213 were filled and 3,537 were empty. In the light of such figures, it is not surprising that a movement has been started to sell some of these churches that occupy land valuable for other purposes, so that the money thus raised can be expended in districts where there is need for more church work and where large congregations can be gathered.—*Boston Herald.*

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Rodin and the Liar.—An American has brought from Paris a story of Rodin, the sculptor. "Rodin," he says, "received a raw daub of a painting, a month or two ago, from a conceited young student. He accepted the painting gracefully, but he was much annoyed, a week later, to hear that the student was going about declaring: 'Rodin says the painting I gave him is better than the Degas over his chimney.' Rodin decided to take down this conceited young liar. So, meeting him one day at the Cafe de la Paix, he said, in the hearing of a good many mutual acquaintances: 'My house was robbed on Sunday night. Did you hear about it?' 'No,' said the youth. 'Was much taken?' 'Half a dozen suits of clothes, some silver, and—you know that painting of yours?—well, they cut it out of the frame, and—' 'Hurrah!' the youth interrupted, excited and pleased. 'Why, my fortune's made. The newspapers—' 'They cut the picture out,' Rodin continued, 'and went off with the frame.'"

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The Proposed Apulian Aqueduct.—After prolonged delay the Italian Government has at last introduced the measure sanctioning construction of the Apulian aqueduct. This project consists of an irrigation system for the arid tableland of Apulia. The aqueduct is to cross the Apennines by means of a tunnel 7½ miles long, and will have several subsidiary canals, so that twenty-one communes of the province of Foggia, and all those of the provinces of Bari and Leece, will receive an adequate supply of water. These communes contain a population of nearly two millions. It is estimated that the scheme will cost $25,000,000, and will not be completed before the year 1920.—*Exchange.*

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Giant Tree Doomed.—The grizzly giant of the Mariposa big-tree grove is doomed to death. Whether old age or disease is claiming it is not known, but certain it is the sap of the immense trunk is ceasing to flow and the tree is beginning to topple. "Nat" Ellery, State Highway Commissioner, says the tree is in such a rapid decline it cannot live longer than a few months. Already the tree is eighteen feet out of plumb, and is gradually sinking. The only thing that can save the tree from a sudden fall from its Tower of Pisa position is the use of wire cables, and arrangements for these have been made. The tree is the best known in the State. It is 244 feet tall and 109 feet in circumference.—*N. Y. Tribune.*

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A Powerful Dredge.—The Susquehanna Iron Company's big plant will be in operation within thirty days. It has been finished, and the great furnaces are ready for the ore. The stupendous task of digging a canal or inland harbor nearly a mile in length from the new outer harbor to the company's plant is now in progress. This canal is to be 200 feet wide and 23 feet deep. That is to say, it is to be 23 feet below the mean level of the lake, so that in some places the excavation is to be 40 feet in depth. That is quite a hole to dig in the ground a mile long, but the Buffalo Dredging Company expects to dig it and build solid cement wharves on both sides of its entire length by April 1 next. It requires great engineering skill and an enormous amount of physical power to accomplish such a task. There are 1,400 feet of it through the solid rock. Steam power and compressed air are accomplishing it. When examinations were made it was found that a strip of rock nearly a mile long, 200 feet wide and 10 feet in thickness had to be cut out. It is not shale rock or slate, but solid living rock. The Buffalo Dredging Company is ripping through that solid ledge of rock with a steam shovel. The dredge used for that purpose is the greatest tool of its kind in the world. It looks like a giant mud dredge, and is built on the same principle as an ordinary horse-power steam engine. Its anchors or spuds are made of giant Oregon fir, 53 feet long and 44 inches through. It has a dipper or dredge with a capacity of seven cubic yards. One man with a dozen levers before him operates the whole machine. The dredge of the dipper is armed with steel teeth about 15 inches long and 6 inches thick. The man at the levers drops the great dipper, with its massive handle, down 15 feet to the rock bottom. Then he moves another lever, and the big engine down in the hold gets under way. The great steel cable attached to the dipper quivers under the strain. There is a sound of ripping and tearing and grinding, as if the earth was being turned inside out, and up comes the dipper, with its enormous maw choked with huge masses of splintered rock. It has ripped up seven cubic yards, and when it has been swung over to the rock scow its mighty under jaw drops, and it spews out bowlders weighing tons. The teeth of that dipper bite out seven cubic yards of rock a minute.—*Buffalo Express.*

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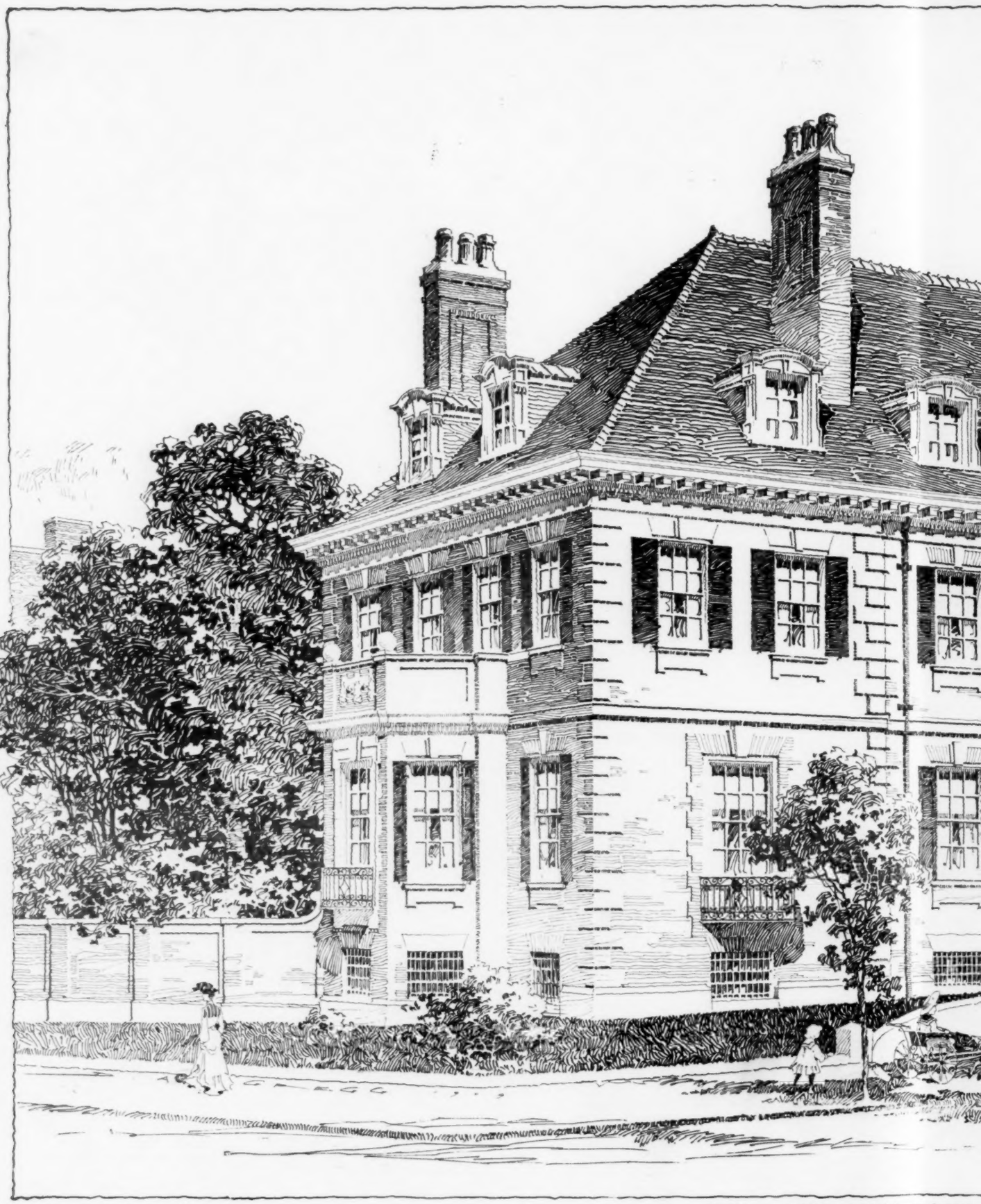
Oldest Clock.—The oldest working clock in Great Britain is that of Peterborough Cathedral, which dates from 1320, and is conceded to have been made by a monastic clockmaker. It is the only one now known that is wound up over an old wooden wheel. This is some twelve feet in circumference, carrying a galvanized cable about 300 feet in length, with a leaden weight of three hundredweight. The cable has to be wound up daily. The gong is the great tenor bell of the Cathedral, which weighs 32 hundredweight, and it is struck hourly by an 80-pound hammer. The going and striking parts of the clock are some yards apart, communication being by a slender wire. The clock is not fitted with a dial, but the time is indicated on the main wheel of the escapement, which goes round once in two hours. This clock is of most primitive design, more so than the famous one made for Charles V of France by Henry de Nick.—*Exchange.*





***Residence of Major R. Dickinson Jewett,***

***Marsh & Peter, Architects***

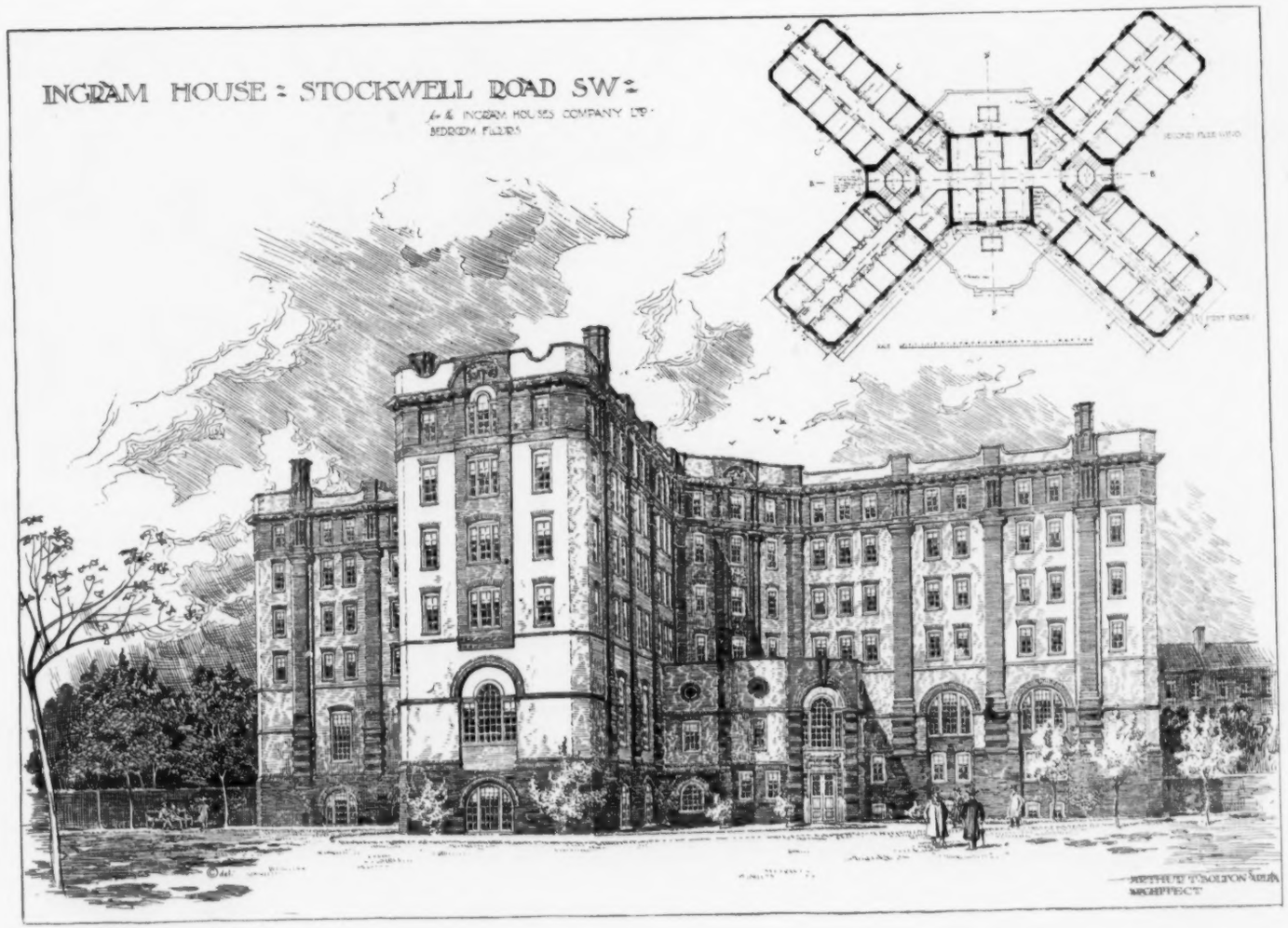
**...on Jewett, Washington, D. C.**
**...er, Architects**

*The American Architect,*
*July 16, 1904*
*No. 1490*



**Town-Hall, Needham, Mass.**

**Wiaslow & Bigelow, Architects.**

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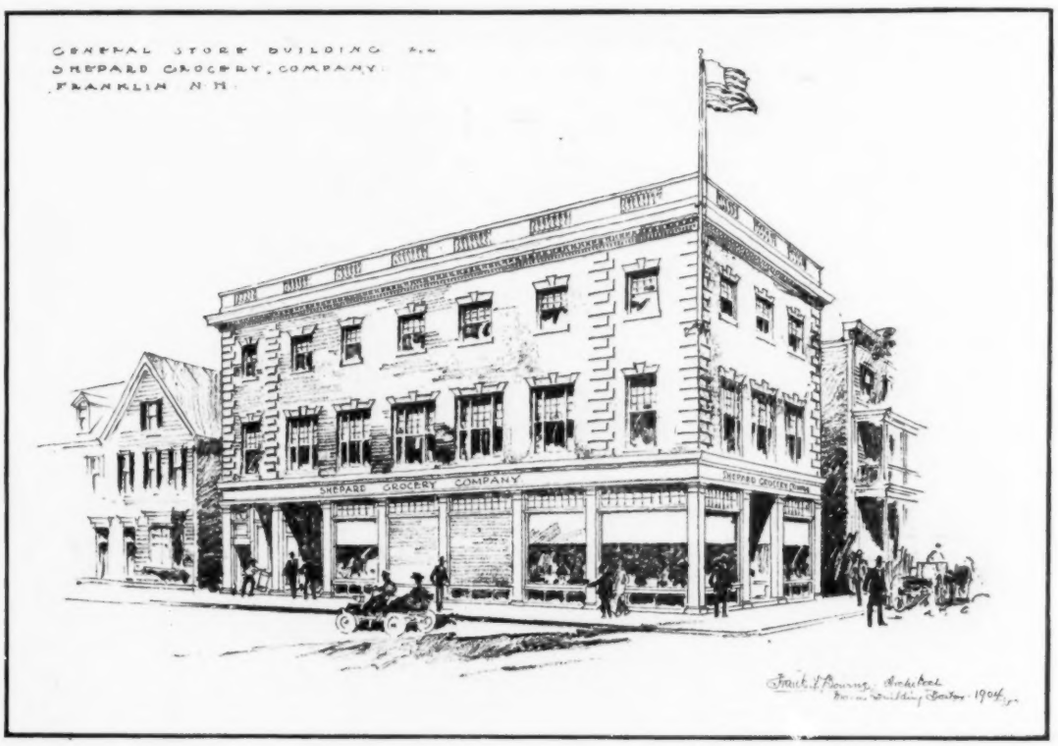



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*The American Architect,*
*July 16, 1904.*
*No. 1490*

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JULY 16, 1904

# THE AMERICAN ARCHITECT AND BUILDING NEWS

VOL. LXXXV

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ARCHITECTURE

ENGINEERING

DECORATION

CONSTRUCTION

238 TREMONT ST.

BOSTON MASS.

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# The American Architect and Building News

*A WEEKLY JOURNAL OF CONSTRUCTIVE AND DECORATIVE ART*

VOL. LXXXV.—No. 1490. SATURDAY, JULY 16, 1904. PRICE, { INTERNATIONAL ISSUE, 50 CTS. / REGULAR " 25 "

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American Mason Safety Tread Co. *Stair Tread.*
Blodgett Clock Co. . . . . *Clocks*
Broad Gauge Iron Stall & Vane Works. *Stable Fixtures.*
Burditt & Williams Co. . . *Hardware*
Butcher Polish Co. . . . . *Floor Polish*
Cabot, Samuel. . . . . *Deafening Quilt*
Cairns, Hugh. . *Stone Carving and Modelling*
Campbell, Walter M. . . . *Perspectives*
Columbian Marble Quarrying Co. *Marble Dealers.*
Craig, David . . . . . *Clean-out*
Crawley & Son, George E. . *Tiles and Fireplaces.*
Dadmun, Leon E. . *Photography (Architectural and Commercial).*
Edison Light. . . . *Electric Apparatus*
Elston & Co., A. A. . *Buildings Torn Down*
Erickson Electric Equipment Co. *Electrical Contractors.*
Folsom Snow Guard Co. . *Snow Guards*
Fowle, Herbert. . *Ornamental Plastering*
Gallagher & Munro Co. . . . *Plasterers*
Gurney Heater Mfg. Co. . . *Hot water, etc.*
Heliotype Printing Co. . . *Art Printing*
Jazer Co., Charles J. . . . *Engineers*
Johnson & Co., H. A. . . *Portable Ovens*
Ledder, G. G. . . . *Drawing Instruments*
Massachusetts Institute of Technology. *School.*
Morrill & Whiton Construction Co. . . *Masons and Builders.*
Morris-Ireland Safe Co. . . . . *Safes*
Morse & Whyte. . *Artistic Wire & Metal Works.*
New England Tank and Tower Co. *Tanks*
Parks & Jeeves. . . . . *Blue Printing*
Perry, W. J. . . . . *Dumb-waiter*
Robey-French Co. . *Photographic Supplies*
Ryan, William Curtis. . . . *Insurance*
Samson Cordage Works. . . *Sash-Cord*
Shultz Belting Co. . . . *Leather Belting*
Simpson Bros. Corporation. . *Asbestolith*
Sleep, Elliot & King Co. . *Modelling and Ornamental Plaster.*
Spaulding Print Paper Co. . *Blue Prints*
Standard Fire-escape & Mfg. Co. . *Fire-escapes*
Sturtevant Co., B. F. . . . *Fan System*
Whittier Machine Co. . . . . *Elevators*

**Cambridge.**
Goodhue, Harry Eldredge. . . *Memorial Windows.*

**Medford.**
Tufts College. . . . . *School*

**Palmer.**
Flynt Building & Construction Co. . . *Building Contractors.*

**Worcester.**
Algonquin Red Slate Co. . . . *Paint*

### MISSOURI.

**St. Louis.**
Washington University School of Engineering and Architecture. *School*

### NEW JERSEY.

**Jersey City.**
Dixon Crucible Co., Jos. . . . *Graphite*

**Paterson.**
Passaic Steel Co. . . . . *Structural Iron*

**Perth Amboy.**
Perth Amboy Terra-Cotta Co. . . *Terra-Cotta.*

### NEW YORK.

**Irvington-on-Hudson.**
Lord & Burnham Co. . . *Conservatories*

**Ithaca.**
Cornell University. . . . . *School*

**Jamestown.**
Art Metal Construction Co. . . . *Metal Furniture.*

**Long Island City.**
Richey, Browne & Donald. *Ornamental Iron and Bronze.*

**Mount Vernon.**
Hartmann Bros. Mfg. Co. *Staved Columns*

**N. Y. City.**
American Tin Plate Co. . . . *Roofing Tin*
Associated Expanded Metal Co. *Expanded Metal.*
Atlas Cement Co. . . . . *Cement*
Chicago Clothes Dryer Works. . *Laundry Drying Machinery.*
Deane, E. Eldon. . . . . *Colorist*
Elevator Supply and Repair Co. . *Electric Signals.*
Fisher & Co., Robert C. . . . *Marble*
Frink, I. P. . . . . *Reflectors*
Hayes, George. . . . *Metallic Lathing*
Hecla Iron Works. . *Ornamental Iron and Bronze.*
Herzog Teleseme Co. . . *Elevator Signals*
Jackson & Co., Wm. H. . . . *Grates*
Jenkins Bros. . . . . *Valves*
Jones, T. W. . . . . *Vases*
Lawrence Cement Co., The. . . *Portland Cement.*
Kinnear-Hood Steel Co. . . . *Radiators*
Motoroff Exhauster Co. . . . *Ventilation*
Mott Iron Works, The. . . . *Iron Work*
Neuchatel Asphalt Co. . . . *Asphalt*
New Jersey Zinc Co . . . . *Zinc White*
New York Belting and Packing Co., Ltd. *Interlocking Rubber Tiling.*
N. Y. Metal Ceiling Co. . *Metal Ceilings*
Okonite Co. Ltd. . . . . *Insulated Wire*
Pitt, W. R. . . . . *Folding-Gates*

### NEW YORK.

**N. Y. City.**
Rider-Ericsson Engine Co. . . . *Hot-Air Engines.*
Sargent & Co. . . *Builders' Hardware*
Smith Co., H. B. . . . . *Steam Heat*
Smith & Co., Edward. . . . . *Varnishes*
Society of Beaux-Arts Architects, The. . *School.*
Truss Metal Lath Co. . . *Metal Lathing*
U. S. Mineral Wool Co. . . *Mineral Wool*
Warren Chemical & Mfg. Co. . *Asphalt*
Williams, John. . . . . *Wrought Metal*
Yale & Towne. . . . . *Hardware (Art)*

**Rochester.**
Cutler Mfg. Co. . . . . *Mail Chutes*

**Tenafly.**
Richter Mfg. Co. . . . . *Tapestrolea*

**Troy.**
Globe Ventilator Co. . . . . *Ventilators*
Troy Laundry Machinery Co. . *Washing-Machines.*

### OHIO.

**Canton.**
Berger Mfg. Co., The. . . *Metal Ceilings*

**Columbus.**
Kinnear Mfg. Co., The. . . *Steel Rolling Doors.*
Nelson Co., The C. T. . *Capitals (Carved)*
Ohio State University. . . . . *School*

**West Cleveland.**
Cudell, F. E. . . . . *Traps*

### PENNSYLVANIA.

**Ambler.**
Keasby & Mattison Co. *Magnesia Covering*

**Philadelphia.**
French & Co., Samuel H. . *Mortar Colors*
Loomis Filters Improved System. *Filters*
Merritt & Co. . *Lockers (Expanded Metal)*
Morse, Williams & Co. . . . *Elevators*
Taylor Co., N. & G. . . . . *Roofing Tin*
The Edison Portland Cement Co. . . . *Portland Cement.*
Thorn, J. S. . . . . *Sheet Metal*
University of Pennsylvania. . . . *School*

**Pittsburgh.**
National Fireproofing Co. . *Fireproofing*
Standard Sanitary Mfg. Co. . *Porcelain Enamelled Ware.*

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Charles J. Jager Co.
Keasbey & Mattison Co.
Morse, Williams & Co.
Standard Sanitary Mfg. Co.
Thorn Co., J. S.

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Folsom Snow Guard Co.
Nelson, C. T. & Co
New Jersey Zinc Co.
Pitt Wm. R.




## BUILDING INTELLIGENCE.

(Reported for the American Architect and Building News.)

### ADVANCE RUMORS.

ADAMS, MASS.—The contract for building a church for the Polish Society has been awarded to H. C. Ward, New York City, at $55,000. The site is at the corner of Summer and Hoosac Streets. Brielmaer & Son, Milwaukee, Wis., architects.

BALTIMORE, MD.—The Court House Commission has appointed Judge Henry D. Harlan, Frank N. Hoen and Robert H. Smith as a committee to commission Wyatt & Nolting, 4 East Lexington Street, to prepare plans for repairing the St. Paul Street side of the court house, which was damaged by fire. It is reported that, as soon as plans have been prepared, the Commission will ask bids for the work. Appropriation, $150,000.

Parker & Thomas, architects, have been commissioned to prepare plans for a four-story store building, to be erected at Baltimore and Charles Streets, for the "Hub." Steel, brick and terra-cotta construction, 50x110x50 feet, forming an "L." Cost, $100,000.

The Calvert Building and Construction Company, 604 Cathedral Street, has awarded contract to Norcross Brothers, builders, for the reconstruction of the Equitable Building. Sperry, York & Sawyer, architects, Builders' Exchange. The cost of the repairs on this building, together with those on the Calvert Building, which are being made by the George A. Fuller Company, builder, 203 North Street, will be about $1,200,000, it is said.

BETHEL, VT.—At the School Meeting it was voted to erect a school, at a cost of $25,000. C. D. Cushing, G. H. Tupper, L. M. Greene and E. A. Davis have been appointed as a building committee.

BINGHAMTON, N. Y.—The contract for erecting a new $30,000 church for St. Paul's Roman Catholic Church has been awarded to James Sullivan, of Binghamton. Rev. Father John V. Simmons is the pastor.

BUFFALO, N. Y.—Reports state that A. E. Westover, of Philadelphia, Pa., is preparing plans for a theatre and office building to cost $400,000, for B. F. Keith, in Buffalo.

CANANDAIGUA, N. Y.—The School Board has decided to build and equip a new academy building, costing $80,000.

CHARLOTTE, N. C.—Plans are being prepared by Frank P. Millburn, of Columbia, S. C., for a passenger station which is to be erected here for the Southern Railway, at a cost of about $75,000.

CHELSEA, MASS.—The Board of Aldermen has passed an order directing the joint committee on Finance and Public Property to secure plans and specifications for a new City Hall, to cost not more than $80,000.

CHICAGO, ILL.—Marshall Field has commissioned D. H. Burnham & Co. to prepare plans for a 14-story, 150x300 feet, fireproof warehouse of brick and stone, to be built at Mather Street and Stewart Avenue, at a cost of $1,000,000.

M. L. Rothschild has purchased ground at Jackson Boulevard and State Street, and commissioned Holabird & Roche to design a fireproof office building on the site. It will be 12 stories high, of steel and terra-cotta construction, and cost about $200,000.



## BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

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## BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

CINCINNATI, O.—The Union Terminal Railroad Company has been incorporated, and a large Union station will be built at Court, Canal, Plum and Race Streets; $8,000,000 stock will be issued to pay for the same The work is expected to extend over three years.

CLEVELAND, O.—The Board of Supervising Architects, composed of Messrs. D. H. Burnham, John M. Carrere and Arnold W. Brunner, has approved the preliminary plans of Lehman & Schmitt, Garfield building, for the new court house, and it is stated that completed plans will be made as soon as possible so that work upon the excavation and the building proper may begin this year.

A new edifice, to cost about $30,000, will be erected by the South Presbyterian congregation on the site of its present building, at Scranton Avenue and Prame Street. The church to be constructed will be built of pressed brick with stone trimmings, and of Gothic architecture. It will contain an auditorium capable of seating about 400 persons.

Frank L. Packard, New Hayden Building, Columbus, has prepared plans for an infirmary building in connection with State Hospital. Two stories, 181x140 feet, stone construction. Estimated cost, $100,000.

DECKERTOWN, N. J.—E. G. W. Dietrich, 320 Broadway, New York, has plans for a two-story, ten-room, brick and stone schoolhouse, 67x112 feet, to be built in Deckertown, N. J., at a cost of about $35,000. Clerk of the Board of Education will receive bids.

DENVER, COLO.—Press report states that

## BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

the School Board has decided to erect two new high schools, one on the North Side and the other on the South Side, estimated to cost between $200,000 and $300,000 each. D. W. Dryden, architect.

DULUTH, MINN.—The new Masonic Temple is to be built at the corner of Lake Avenue and Second Street. It is to be constructed of brick and red sandstone, and will cost $75,000.

FULTON, MO.—Plans have been prepared by Theo. Link, of St. Louis, for a $20,000 building to be erected on the campus of the Westminster College.

GLENCOE STATION, MD.—Henderson & Co., of Baltimore, have secured a contract for two buildings for an agricultural college to be erected on an 1,100-acre tract, known as Fellston Farm, for H. D. Perkle, of Buffalo. Eisenwein & Johnston, of Buffalo, are the architects, and it is planned to erect a number of buildings, including an administration hall, dormitory buildings, school buildings, an infirmary and agricultural experimental buildings. The first building to be erected by Henderson & Co. will cost $80,000, anr will consist of a two-story office building, 47x48 feet, and an auditorium building, three stories high, 189x152 feet.

GRANVILLE, N. Y.—The trustees of Granville Union School have awarded the contract for erecting the high school to S. Weinberg, at $26,709.

HAMMOND, IND.—Architect J. T. Hutton has completed plans for the Carnegie library building for this city. Two stories, 52x70

## BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

feet, stone construction. Estimated cost, $25,000.

HARTFORD CITY, IND.—The citizens have voted in favor of erecting a school, at a cost of $40,000.

ITHACA, N. Y.—It is stated that the contract for building the Goldwin-Smith and Rockefeller buildings on the Cornell campus at Ithaca has been awarded to Pulford & Dempsey, of Elmira, N. Y., at a cost of $160,000.

KALAMAZOO, MICH.—The members of St. Augustine's parish, under the leadership of Very Rev. F. A. O'Brien, have decided to spend fully $160,000 in new buildings this year. Of this amount $$12,000 will go for a new brick school and church on Lake Street, while $150,000 will be expended in the enlargement of Nazareth Academy. One building 400x60 and other smaller ones will be erected of stone and brick.

Mrs. William Browne will erect an office building, with stores on the first floor, at the corner of South and Burdick Streets. This structure will be of slow-burning construction, pressed brick and stone being used. It will be five stories high and thoroughly modern in every respect. When completed it will cost $50,000.

KANSAS CITY, MO.—It is proposed to erect an addition to the Baltimore Hotel, on Baltimore Avenue and 12th Street, at a cost of $100,000. Architect, L. S. Curtiss, 1,106 Baltimore Avenue.

KEWANEE, ILL.—J. A. Ream, of Galesburg, has received the contract for the construction of the new high school building at $65,888.

LEOMINSTER, MASS.—The town has purchased a site, and has also appropriated $50,000 to commence the work of erecting a high school on the site. Frost, Chamberlin & Briggs, of Worcester, are preparing plans for this building, which will cost about $125,000.

LITTLE ROCK, ARK.—Competitive plans are being considered for a $100,000 school.

LYNN, MASS.—E. W. Maynard, of Boston, has completed plans for a $75,000 theatre to be built by the Eastern Amusement Company, in Sumner Street, Lynn.

MERCHANTVILLE, N. J.—Arnold H. Moses, 136 South 4th Street, Philadelphia, Pa., has prepared plans for a stone and frame church, 60x90 feet, for the Baptist congregation, to be erected in this city.

MILWAUKEE, WIS.—Two new Catholic churches will be erected in the city next year, if present plans are carried out. The parish of the Church of the Immaculate Conception is raising money for the erection of a $30,000 structure on the triangle formed by Kinnickinnic and Russell Avenues, in Bay View. It will be of brick, and it is hoped to have it ready for dedication in 1905. St. Matthew's new church will be of brick and stone, and will cost $20,000. It will be on Twentieth Avenue adjoining the present church, which will be used as a parochial school.

The committee of the School Board has decided to increase the amount from $58,000 to $60,000 for the erection of the Fourteenth Ward school, and to readvertise for plans for a fireproof school, with cement floors, tile partitions, and with it optional to the designer as to whether the walls shall be of concrete or of solid brick. The plans must be sent in within ten days. The committee also decided to advertise for plans for the North Side High School on an appropriation of $130,000.

MOBILE, ALA.—A new edifice is to be erected for the congregation of St. Joseph's R. C. Church, at Jefferson, St. Louis, Bayou and Spring Hill Avenues, at a cost of $75,000.

MONTGOMERY, ALA.—The congregation of the First Baptist Church has accepted the plans of G. L. Norrman, of Atlanta, Ga.,

## BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

for an edifice to be erected at Perry, Alabama. Scott and Lawrence Streets, at a cost of $60,000. Rev. Chas. A. Stakely, pastor.

NEWBURYPORT, MASS.—Reports state that Arthur J. Brooksy, of Newburyport, has secured the contract to erect a brick edifice for the St. Aloysius of Gonzaga congregation, at $20,000.

NEW HAVEN, CONN.—L. W. Robinson, of this city, is preparing plans for rebuilding the Hoodley Building, which was recently destroyed by fire.

NEW ORLEANS, LA.—It is rumored that Captain Salvatore Pizzati has given $75,000 for the erection of anasylum and industrial school for the poor Italians and orphans.

NEW YORK, N. Y.—The Board of Estimate has authorized an issue of $550,000 corporate stock for a new court house in the Bronx. The revised plans for the new Bellevue Hospital, involving an estimated outlay of $$9,400,000, have been referred to the Comptroller.

Plans have been filed for the enlargement of the Medical School of the New York University, on First Avenue and Twenty-sixth Street, by the addition of a seven-story annex at 435 and 437 First Avenue, 50x85, giving the enlarged edifice an entire avenue frontage of 123 feet. It is to have a facade of limestone and granite, with brick and ornamental iron trimmings to harmonize with the main building. It will be a fireproof structure, and is to be abundantly lighted by three stories of large windows, seven abreast, extending nearly the entire width of the annex. The cost of the new building is estimated at $60,000.

Milliken Brothers, 11 Broadway, have the general contract to build the eleven-story store and loft building on the northeast corner of William and Frankfort Streets, for J. W. & H. V. D. Black, of 95 William Street. Buchman & Fox, 11 East 59th Street, architects, estimate the cost at $150,000.

H. J. Hardenbergh, 10 West 34th Street, has awarded to C. F. Bond, Inc., 136 Liberty Street, the general contract to erect a five-story store and tenement building, 50x88 feet, at Nos. 1,291 and 1,293 Second Avenue, for Ellen S. Auchmuty, of Lenox, Mass., and F. A. Schermerhorn, of 101 University Place, this city. The structure will cost $50,000.

NORWICH, CONN.—The Board of Control has voted $36,000 for the completion of the work upon the State Hospital for the Insane at Norwich, this being in addition to the State appropriation of $100,000.

ORANGE, N. J.—The School Board contemplates building a new schoolhouse to cost about $80,000, and desires to secure a site at Cleveland and Main Streets. An appropriation of $125,000 has been asked for.

OWEGO, N. Y.—Report states that James J. Walker has decided to rebuild the Opera House in Owego. The building will have all the latest improvements.

PEORIA, ILL.—The permit for the construction of the Schipper & Block building has been issued. The building will cost over $300,000 when completed. It is to be eight stories high, of brick and steel.

PHILADELPHIA, PA.—Plans are being prepared by Chas. Barton Keen, 1,604 Chestnut Street, for a ten-story apartment house of fireproof construction, with exterior walls of brick and terra cotta, and cost about $250,000

Carl P. Berger, Penn Square building, has prepared plans for the German Theatre to be erected at Girard Avenue and Franklin Street, at a cost of $175,000.

Doyle & Doak, 1,509 Sansom Street, have received the contract to erect a clinical amphitheatre at the Hahnemann Hospital, at a cost of about $30,000.

PITTSBURG, PA.—Report states that F. J. Osterling, Times building, is preparing plans for a $250,000 building which the Scottish Rite Masons contemplate erecting probably in Oakland District. Geo. W. Guthrie, Chairman Site Committee.

PORTSMOUTH, N. H.—O'Brien & Hoolihan Contracting Company, of 1,722 Park Street, Syracuse, N. Y., have been awarded the contract for the construction of a steel plant building at the Portsmouth, N. H., navy yard, at $113,344. Also, the contract for building a machine shop at the navy yard, Portsmouth, at $61,180.

PUEBLO, COLO.—The School Board has accepted plans prepared by R. S. Roeschlaub & Son, of Denver, for the new Central High School, which is to be erected at Grant, Orman and Michigan Avenues and Broadway, at a cost of about $300,000.

ROME, N. Y.—It is reported that the Floyd County Medical Society is considering the erection of a hospital in this city.

SANTA FE, N. MEX.—Plans for the new reform school to be established at El Rito have been completed by Rapp & Rapp, of Las Vegas. There will be twelve buildings in all, to cost about $150,000.

### PROPOSALS.

**Treasury Department, Office of the Supervising Architect, Washington, D. C., July 12, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 3d day of August, 1904, and then opened, for the construction of new mechanical equipment and fixtures in, and remodelling of the laboratory of the Supervising Architect in the U. S. Treasury Building, Washington, D. C., in accordance with drawings and specification, copies of which may be had at this office, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1491**

**Treasury Department, Office of the Supervising Architect, Washington, D. C., July 12, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 15th day of August, 1904, and then opened, for the installation of a conduit and electric wiring system for the U. S. Post-office, Lawrence, Mass., in accordance with the drawings and specifications, copies of which may be obtained at this office, or at the office of the Superintendent of Construction at Lawrence, Mass., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1491**

## PROPOSALS.

**CONSTRUCTION.** [At Peoria, Ill.]

Bids will be received **August 10** by Reeves & Baillie, Architects, Y. M. C. A. Building, for erecting (exclusive of heating apparatus and plumbing system) a building for John C. Proctor at Spring Hill Park here. 1491

**CONSTRUCTION.** [At Cleveland, O.]

Bids will be received **August 1** by Starr Cadwallader, School Director Board of Education, Rose Building, for furnishing material and erecting an addition to Quincy School, including ventilating, heating, etc.; price for labor and material to be submitted separately. 1491

**ADDITION.** [At Columbus, O.]

Bids will be received **July 23** by the Board of Library Commissioners for furnishing material and erecting an addition to State Library. Frank L. Packard, Architect, Hayden Building. C. B. GALBREATH, State Librarian. 1490

**CEMENT.** [At Cincinnati, O.]

Bids are wanted **July 27** for furnishing about 900 barrels American Portland cement at Frankfort or Worthville, Ky., for use at Lock No. 1, Kentucky River. ERNEST H. RUFFNER, Corps Engineers, U. S. A. 1490

**JAIL, RESIDENCE, ETC.** [At Jamestown, N. D.]

The County Auditor of Stutsman County, North Dakota, will receive at his office in the courthouse, in the city of Jamestown, N. D., separate bids for: 1. Erecting a Sheriff's residence, jail building and tunnel. 2. Erecting a boiler-house and tunnel. 3. For a steam-heating plant. 4. Plumbing for above buildings. 5. Steel and cell work for jail. All bids to be as per plans and specifications on file in the County Auditor's office and at the office of E. J. Donohue, architect, 58 Gilfillan Block, St. Paul, Minn. Bids will be received **until August 22, 1904.** ANDREW BLEWETT, County Auditor, Stutsman County, N. D. 1490

Treasury Department, Office of the Supervising Architect, Washington, D. C., July 9, 1904. Sealed proposals will be received at this office until 3 o'clock P. M., on the 17th day of August, 1904, and then opened, for the construction (including heating apparatus, electric wiring and conduits) of the U. S. Post-office at Wausau, Wisconsin, in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Postmaster at Wausau, Wisconsin, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1491

Treasury Department, Office of the Supervising Architect, Washington, D. C., June 29, 1904. Sealed proposals will be received at this office until 3 o'clock P. M., on the 4th day of August, 1904, and then opened, for the construction (including plumbing, heating apparatus, electric conduits and wiring) of the U. S. Post-office at Hutchinson, Kansas, in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Postmaster at Hutchinson, Kansas, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1490

Treasury Department, Office of the Supervising Architect, Washington, D. C., June 30, 1904. Sealed proposals will be received at this office until 3 o'clock P. M., on the 8th day of August, 1904, and then opened, for the construction (excepting heating apparatus) of the U. S. Post-office at Pekin, Illinois, in accordance with drawings and specifications, copies of which may be had at this office or at the office of the Postmaster at Pekin, Illinois, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1490

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