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THE Thirty-seventh Annual Convention of the American Institute of Architects will be held in Cleveland, Ohio, October 15, 16 and 17, 1903. The headquarters of the Convention will be at the Hollenden House, and members are requested to make early engagements of rooms, and to send notice of their intention to be present to the Secretary of the Institute, so that arrangements may be made for railroad tickets and other accommodations. Mr. Theodore N. Ely, of Philadelphia; Mr. Augustus St. Gaudens, Mr. John La Farge, Mr. E. H. Blashfield and Mr. Austin W. Lord, all well known to the profession, have promised to read papers.

PRESIDENT ROOSEVELT'S speeches usually gain for him increased respect and esteem from all honest Americans, and his address at Syracuse on Labor Day ought to add much to his reputation and influence. Nothing needs to be impressed more strongly upon the minds of the present generation than the principle that laws must, in a free country, be made to apply impartially to all citizens, and that laws which unduly favor the poor, equally with those which unduly favor the rich, lead to tyranny and slavery. Our energetic President, no doubt, intends to carry out his own principles, so far as he has opportunity for doing so, and he is likely to find plenty of occasions for asserting them. It is reported that Miller, the foreman in the Government printing-office, who exposed the extravagance and shiftlessness of the methods in use there, and has been savagely persecuted ever since by the union of workmen which controls the establishment, is tired of struggling, and intends to resign. Whether the report is true, or is simply started by the union leaders, as a part of their tactics for getting rid of him, we cannot say; but we trust that the President, whether Miller stays or not, will give unmistakable evidence of his determination to uphold him, and all persons like him, in doing what they conceive to be their duty. Miller, seeing that the public money was being wasted in doing work by slow and obsolete methods, said so, as every conscientious citizen should have done in his place; and did what every trusted employé is bound to do in pointing out how greater economy and efficiency could be secured in the branch of the work with which he was concerned. To allow him to be hounded out of his position by the people who betray the public interest for their own profit would be to discourage all honest public servants, while cordial support given to him will be virtually given to all those who try to do their duty in public employment.

THE new union station, at Washington, which forms a part of the general scheme for the improvement of the city, and is, in consequence, to be paid for in part out of public money, is opposed by a citizens' association, which has brought suit to prevent the appropriation of public funds for the building, as being an unconstitutional use of public money for private purposes. It seems doubtful whether this contention will be sustained. Although a railroad station is strictly a private building, it has a certain public character, and it acquires a still more public character where its design and material are regulated, as they are in this case, by the public authority, and where the regulation is the subject of a contract between the Government and the railroad companies. Meanwhile, every one will regret to have the execution of the splendid scheme of the Burnham-McKim-Olmsted Commission unnecessarily delayed.

A CURIOUS little piece of labor news is reported from a certain manufacturing city. The manager of an establishment which employed a considerable force of men in nickel-plating was notified of a "grievance," with the usual threat that, unless it was redressed, the platers would strike. The manager, being, like nine managers out of ten, a sensible man, and sincerely friendly to his workmen, replied that he could not accede to the request, but, as the consequence to the men of his refusal would be enforced idleness, prolonged until the caprice or interest of some outsider caused the strike to be called off, he suggested that the men should raise enough money to set up a little plating-shop of their own, and promised that if they could do his plating for him as cheaply as any one else would do it, he would give them all his work. The men, instead of wasting time in groaning about the "oppressions of Capital," at once proceeded to put his suggestion into effect. In a few days the necessary sum was subscribed, a shop secured, and work begun, and the establishment is now in full operation. As the people who own it find time to work in it thirteen hours a day, they have nothing to fear from the competition of shops employing men who are obliged to spend eight hours out of every twenty-four in the "recreation" so precious to the labor agitator's mind, and are making money so rapidly that only a small portion of the subscriptions to the capital have been called in, the rest being paid out of the dividends allotted to the subscribers from the profits of the business.

THE time seems to have arrived when an interesting and valuable book might be written upon American architectural antiquities. The artistic side of the matter has been pretty thoroughly treated in our own "Georgian Period" and other works, but there is a great deal of interesting material in the peculiarities of planning and construction of American buildings of the seventeenth century, and the early part of the eighteenth, which has never been adequately studied. Most people are far from realizing the political and commercial importance of the American colonies under the reigns of the later Stuarts and of William III. Colbert, the great finance minister of Louis XIV of France, who studied commercial conditions with unremitting zeal, estimated that in the last quarter of the seventeenth century all the maritime commerce of the world was carried on by about twenty thousand ships, of which sixteen thousand belonged to the Dutch, the remaining four thousand being divided among the Venetians, the Genoese, the Portuguese, the Spaniards, the French and the English. Colbert tried to secure a larger share of the world's commerce for the French, but the continual wars which his royal master carried on frustrated his plans, and it was the English, instead of the French, who, by building good and swift ships, sailing them skilfully, and managing them honestly, gradually wrested from the Dutch the ocean carrying trade, and gained that commercial supremacy which they still hold. In this contest the American colonists had a large share. They were at peace with their neighbors, loyal, prosperous and intelligent, and they quickly saw the use which could be made of the timber from their forests in the struggle for the ocean carrying-trade, and ships built in New England, and manned by New England sailors, carried the British flag all over the world. By the year 1700 Boston was the greatest ship-building place in the world, and the influence of its prosperity, and that of the

neighboring seaports, as Salem, Newburyport, Portsmouth, Saybrook and others, was felt in all the country around them. To this period of commercial activity, which was, soon afterwards, brought to an end by the outbreak of the French and Indian war, followed by the contest for independence, belong a great number of modest, but interesting houses still existing throughout New England. In the houses of this period the earlier "mansion" type, with its two stories, its "hipper" roof, and chimneys in the outside walls, is generally replaced by a model better suited to the New England climate, with its roof carried back, toward the north, in a long slope over the sheds and outbuildings, which protect the main part of the house from cold winds, while the front, which almost always faces the south, is furnished with two stories of liberal windows. The chimney in these houses is usually built in a single large stack, in the middle of the structure, containing flues from two, three, and often four or more fireplaces, clustered around it, and opening into the various rooms. To the house proper was usually added a range of sheds, closed at the back and end but open to the south, with wide elliptical arches, which served to shelter the woodpile, as well as to afford a roosting-place for the poultry of the establishment. This type, evolved from the conditions of the New England climate, could hardly be improved upon for its purpose, and multitudes of houses of this period have been kept in repair, and still serve as comfortable dwellings.

MANY New England houses of the end of the seventeenth century have their chimneys built of bricks imported from Holland, and easily recognizable by their small size, the dimensions of the native bricks, when the manufacture of them was begun, having been fixed, as they still remain, at a compromise between the Dutch and the English standards. Fireplace tiles were also imported from Holland, and it is probable that many other articles, such as door knobs and latches, knockers, andirons, candlesticks and fenders, were, at that period, of Dutch, rather than English or native origin. Houses entirely of brick seem to have been less common at this time than either earlier or later, possibly because the relative proportion of rich proprietors was smaller; but outside plastering was not unusual, and the coved exterior cornice, plastered underneath, which is so common in the English half-timbered buildings, is still to be seen in many New England houses, crowning a wall of shingles and clapboards. Another English fancy, often repeated in New England, is the projection of the second story over the first. The common idea is that in the crowded old towns the gable ends of the houses, which, in earlier times, usually faced the street, were projected over, so as to gain room in the upper stories, without encroaching on the street. This consideration could hardly have any weight in building a farm-house in the country, but, both in Old England and New England, it was common, two hundred years ago, to form such projections.

THE new fashion of suing individual members of unincorporated labor unions for damages on account of the antics of the body to which they belong is spreading rapidly, and promises to be an important factor in determining the fate of the present system of union management in this country. A firm of contractors in New Jersey has applied to the courts for redress against the individual officers and agents of what it alleges to be a "blackmailing conspiracy," under the guise of a trade union, which seems to have existed, like a good many other so-called "labor" organizations, for the sole benefit of its leaders. This interesting association was composed of building mechanics, and its officers kept watch of the local contractors until they found reason to believe that one of them was in a vulnerable position. Then they made a demand upon him for money, "to prevent a strike." If he was unable or unwilling to pay, a strike was ordered, and the demand increased. If the victim was still unable to raise the sum demanded, word was sent to all his patrons, or others who might think of employing him, that he was regarded with disfavor by the "union," and would not be allowed to carry out any contract that he might enter into. With each new move an addition was made to the sum required, until the unfortunate contractor either submitted or went into bankruptcy. The complainants in the present case, having suffered from manoeuvres of this kind, determined to see what the law could do for them, and multitudes of contractors, who have suffered in the same way, but have been afraid to tell of their wrongs, will await the result with interest.

THE chances are that the members of the "union" will be found without property to satisfy a judgment; and, on taking the poor-debtor's oath, the defendants will be set free to plunder other people in the same way. It is, in fact, in this that the gravest danger of unionism, as at present carried on, lies. In this country, the man who takes care to have no attachable property can live in luxury upon the fruits of blackmailing, swindling and robbery, without being inconvenienced by his victims, and an incentive is thus furnished for the members of the great majority of trades-unions to spend all their money as fast as they get it, which slowly, but surely, is forming a vast community of paupers, ready, when the occasion comes, to follow a leader like Parks, or Devery, or Bryan, into the wildest excesses.

TOURIST architects should make a note to take an excursion into Apulia on their next trip to Italy. The recent movement toward supplying the country on a great scale with water for irrigation has called attention to what has been, even for Italians, an almost unknown region. It must be remembered that in Apulia, Calabria and the so-called "Basilicata," with the mountainous portions of Sicily, are probably to be found the purest existing representatives of the Greek races. In Greece itself, although the language survives, the population has been so mingled with successive hordes of Slavonic and Celtic invaders that archaeologists are unable to determine what the real Greek type may have been, or whether the fair-haired inhabitants of the Laconian mountains, or the dark-complexioned dwellers on the seacoast, are nearest in blood to the heroes of Thermopylae and Salamis. In Magna Græcia, on the contrary, especially in the mountainous and desert Apulia, the Hellenic colonists of twenty-five hundred years ago have been left almost undisturbed. They have been successively subjects of the Romans, the Goths, the Byzantines, the Normans, the Spaniards and the French, but none of these people have cared to settle among them. To this day Greek is said to be spoken in some of the mountain villages of Apulia, as it is in certain communities of Sicily; but Sicily may, like Corsica, have received from Byzantium, in comparatively recent times, a Greek element which would be less important in Apulia. Architecturally, Apulia has little to show in the way of important buildings, but the ordinary houses are of a very curious type, having commonly a flat roof, supported by a domed vault, similar in construction to that of the Syrian houses, but with the difference that, in Apulia, the dome does not show on the outside. Most of the houses are two stories high, and one of the arches of the dome is often built through the front wall, forming a sort of relieving arch over the second-story windows, while a stone balcony, supported on corbels, projects at the line of the second floor.

THE *Outlook*, from which the public has become accustomed to expect thoughtful and valuable suggestions, revives the idea of taxing posters, so as to restrict the use of them, and improve their quality, and we trust that its great influence may be sufficient to secure the carrying of the idea into effect. The *Outlook* thinks, speaking of the city of Lübeck, in Germany, which has passed an ordinance requiring all buildings visible from the public streets to be so designed and constructed as not to detract from the appearance of existing buildings, that this country is nearly ready for similar ordinances. We wish we could agree with its opinion, but it seems to us that even the public sentiment which would support such action, to say nothing of the adoption of regulations so opposed to our notions of liberty, is still in the most rudimentary stages. The readers of magazines in this country have, undoubtedly, some vague yearnings after civic beauty, but, so long as they can endure contentedly the sight of the average American suburb, there is no probability that their aspirations for municipal stateliness and symmetry will bring much result. Perhaps it is on account of our practice of building with wood that our suburban regions are the most hopelessly hideous in the world. A stone wall, even in ruins, has a certain respectability, and even beauty, but a decaying wooden building of the pretentious sort, with its mangy shingle roof, its dilapidated cornice, its clapboards hanging loose, and the columns of its portico standing on tiptoe on some fragments of rotten wood, is the meanest and most miserable object that architecture presents; and until the outlying portions of American cities burn up, or rot altogether away, we do not see how any general pride in civic architecture is possible.

THE NEED FOR A UNIFORM METHOD OF TESTING THE FIRE-RESISTANCE OF BUILDING-MATERIALS.¹

THE paper which I have the honor of submitting to the Congress contains some facts which have been stated and repeated many times, and which might be passed over in silence as far as many of the members present are concerned, if there were no question but of them and their relation to the subject of fire-prevention. But these are facts which cannot be too often repeated, because we wish to formulate, as the outcome of our labors, certain resolutions to be transmitted to the various governments, municipalities and institutions which have sent delegates to this Congress. All the desiderata capable of exercising a favorable influence on the ends which we seek should therefore be reviewed in order that conclusions may be drawn from them which shall necessarily carry conviction. Unfortunately it must be admitted that the very slow rate of progress in the application of fire-preventive measures has hitherto been most discouraging to those who, like the members and honorary corresponding members of the Fire Prevention Committee, know how many good methods and systems exist for saving from fire so large a portion of the public wealth, and that it is from lack of a judicious and rational application of these methods that we witness the occurrence of irreparable catastrophes in which not only immense riches are destroyed, but also large numbers of human beings lose their lives.

It is for you, gentlemen, to declare the causes leading to this state of affairs, injurious to the whole human race.

For my own part, I might content myself with reproducing here all the arguments on the subject that I have already urged in my various lectures, pamphlets and articles in the technical press, but this would be rather long and our time is limited, hence I will merely enumerate them:—

In the first place should be stated the principal cause, (1) the indifference of Governments in general, who to a very great extent leave it to each district to organize its own fire-preventive and fire-brigade services, alike for prevention and extinction of fire, and encourage but little, or not at all, individual initiative in the matter of salvage and the preservation of existing property.

(2) The inadequacy of building laws and regulations and of the rules for the handling, storage, etc., of dangerous materials, as also the by-laws dealing with special risks.

(3) The incomplete education of our engineers and architects in the direction of fire prevention, the inability of the members of these professions generally to draw up suitable specifications for insuring the security of the buildings which they are called upon to erect, and the need for the establishment of a supplementary course of study in preventive measures and the fire-resistance of building-materials in our technical education schemes.

(4) The too elementary training of a large number of fire-brigade officers, both from their own professional point-of-view, and that of the fire-preventive measures regarding which they should be able to influence their fellow-citizens in the right direction.

(5) The inefficient organization of the fire-insurance service, which should work hand in hand with the fire-preventive and fire-brigade services. The one should serve as complement to the other, whereas nowadays we often see them in opposition, to the detriment of the obvious interest of the general public.

(6) The indifference, carelessness and ignorance of employers of labor and the general public with respect to what is clearly their interest. I might add the parsimony of many public authorities, and of owners of property, who can spend enormous sums on matters of luxury and ornament in erecting factories, hotels, large edifices, etc., and yet grudge the addition of the few hundred pounds necessary to secure the protection and preservation of property, not to speak of the lives therein contained.

(7) The lack of data as to the fire-resistance of building-material, owing to the want of the necessary number of testing-stations in different parts of the world, well-equipped, financially strongly supported, and employing a uniform method of investigation.

Naturally I lack the time to develop here the different reasons that I have just enumerated, and which must serve merely as a preliminary matter to the object I have in view, namely, to speak to you about the last of my seven reasons.

Fire-tests have been held more or less in all countries, but it must be admitted that most of these tests have been very imperfect and have not afforded the indispensable guaranty that we have the right to demand to-day, when in every region of human activity the means of investigation have attained such wide developments.

These tests have formed the subject of detailed reports, more or less complete, more or less serious, but always lacking that stamp of authority which belongs to certificates issued by establishments officially organized or at least officially recognized.

I see no necessity for enlarging at this moment on the tests which have taken place in Belgium. The most important of these were conducted under my supervision, and form the subject of detailed reports, one of which I am submitting as an appendix with the present paper.

Those who read them attentively will find in them the proof that in Belgium, for want of equipment and instruments *ad hoc*, we were compelled to act on an approximate procedure, absolutely inadequate,

I repeat, for any person wishing to make a thorough study of the question. What has been done in Belgium has been repeated in many countries, but I will not deal further with this point.

Comprehending the comparative worthlessness of such isolated and unsystematic efforts, a body of practical men, mainly civil-engineers, surveyors, architects, builders, public officials, etc., formed themselves into a society, one of the primary objects of which was to organize an establishment for tests and investigations, which should answer the requirements of practical men. I here refer to the British Fire Prevention Committee, whose useful work many of you, like myself, have followed with great interest. One need only glance at the seventy-three booklets issued by the Society since its foundation in 1897 to be convinced how industriously it has worked.

Those who, like myself, have several times travelled across the Channel from Belgium to attend some of the tests carried out by the Committee, are aware how carefully the tests are made with the desire of informing the public as accurately as possible of the worth of the articles or systems submitted.

That nothing is open to criticism I hardly think, but, all things considered, this Committee's testing-station constitutes an immense advance as compared with the old methods.

With a few insignificant modifications in the procedure, and the arrangements as to the cost of the experiments—which, though costly to the tester, still leave the Committee with a considerable deficit—the tests and the reports would be perfect.

In short, it is to be wished that every country had a similar testing-station under such competent guidance.

The Committee has recently collected in two volumes the greater part of the reports on tests carried out at the station. By arrangement with the learned and distinguished chairman of the Committee, whom you all know, I have executed a French translation of this work. It will shortly, I hope, be published, and enable those unacquainted with the English language to gain a knowledge of the activity of the British Fire Prevention Committee and the real services which it has rendered to the cause we support.

The experiments which the Committee invite us to see on the occasion of this Congress will, I am sure, still more convince you of the utility of such an institution without my further emphasizing the point.

THE MYSTERY OF RADIUM.

LAST March the *Times* announced the discovery by M. Curie of the astonishing fact that radium, in addition to the radio-active properties rendered more or less familiar by the researches of M. Becquerel on uranium, possesses the property of maintaining its temperature at a point three degrees higher than that of its surroundings, and of continuously emitting heat without any apparent diminution of bulk or alteration of physical constitution. This announcement was received with great incredulity. Eminent men of science refused to accept a statement so irreconcilable with scientific experience, and maintained that there must have been somewhere a serious error of observation. That radium possessed radio-active properties indefinitely more powerful than those displayed by any other body was a fact of an order to which we were accustomed. These properties, however remarkable, differed only in degree from properties with which the scientific world was familiar. That difference in degree has indeed become sufficiently astonishing in the light of further study, for it has become clear that radium without external stimulus can produce effects hitherto only obtainable by means of electric-discharge in high vacua. It can throw gases into that state of vibration which causes the production of their characteristic spectrum, and it emits at the same time a radiation resembling the Röntgen rays, and producing like them marked physical and physiological effects. Superadded to this extraordinary development of powers not unfamiliar in their lower manifestations, is the unique and unprecedented power of emission of heat, which is now established beyond all possibility of question. That gross physical effect, in addition to the radio-active and physiological effects produced on so large a scale, points to an amazing total output of energy for which no compensation has yet been discovered.

Strenuous efforts have of course been made to obtain accurate measurements of the heat production, and to determine the effect of external conditions in promoting or retarding it. M. Curie has just communicated to the French Physical Society a paper stating the results of a recent inquiry. It appears that at the time of his lecture at the Royal Institution in June, the resources of that laboratory in producing the manipulated liquid gases were utilized in a new series of experiments. Professor Dewar had already in 1893 improved the calorimetric use of liquid gases by means of a combination of vacuum vessels so that heat-evolution at the temperature of boiling liquid-air or hydrogen could be determined with accuracy. When a sample of radium bromide weighing .7 gramme was tested in this way it was found to be capable of volatilizing an amount of liquid oxygen and hydrogen equivalent respectively to 6 c. c. and 73 c. c. of the gases measured at the ordinary temperature. It seems that through a very wide range of temperature the thermal emission remains unchanged. Whether at the temperature of a summer day or at that of liquid-air, the emission of heat goes on without perceptible variation. When, however, we make a long, downward stride from liquid-air to liquid hydrogen, radium shows that it is not always unaffected by external temperature. Within a comparatively short distance of the absolute zero a change occurs in the rate of heat-emission, but not in the

¹ A paper by Commandant Welseh, C. O. Fire-brigade, Ghent, Belgium, prepared for the International Fire Prevention Congress, held in London, Eng., July 6-11, 1903.

direction that might be anticipated in view of the effect of low temperatures on ordinary chemical action. Instead of being reduced, the emission of heat, so far as present data can be relied on, is augmented at the temperature of liquid hydrogen. Whatever be the nature of this extraordinary phenomenon, it only increases in intensity at a point where all but the most powerful chemical affinities are in abeyance. The evaporation of a liquid gas gives an absolute measurement of the amount of heat given off by radium. Changes in the degree of radio-activity may escape the most careful observer, or may be imagined where they do not exist, but the quantity of liquid hydrogen which a given mass of radium converts into gas in a given time can be easily measured with an accuracy which is beyond cavil, and the amount of heat required for the conversion can be ascertained with great precision. Hence there is no longer any doubt either of the quantity of heat evolved by radium or of the fact that the rate of emission is apparently greater in liquid hydrogen than at any temperature from that of liquid air up to that of an ordinary room.

At the beginning of these experiments in liquid hydrogen a contrary result appeared to emerge when the low-temperature thermal measurements were compared with the early Curie values observed at the temperature of melting ice, as formerly given in the *Times*. This led to the curious discovery that a freshly prepared salt of radium has a comparatively feeble power of giving off heat at all temperatures, but that its power steadily increases with age until about a month from its preparation, when it reaches the maximum activity, which it afterwards maintains apparently indefinitely. A solution of radium salt behaves in exactly the same way. Its power of heat-emission is at first relatively low, but goes on increasing for about a month, when it becomes equal to that of the solid salt, and so remains. These remarkable results throw no light upon the process by which radium maintains its constant emission of heat and radio-activity, but they will have to be accounted for by any theory that may be constructed. — *Times*.

A letter from Sir Oliver Lodge, F. R. S., was printed in the *Times* of August 17, in which he writes:—

"Referring to the article in your issue of the 13th inst., it may be pointed out once more that all the known properties of radium are consistent with the hypothesis that a rearrangement of parts is going on inside the atom, and that it is not a case of chemical action in the ordinary sense at all. There is no difficulty in accounting for the energy in this way." — *Journal of the Society of Arts*.

THE GOVERNMENT AND THE ENGINEERING SCHOOLS.¹

PROBABLY no other single act has done more to advance the possibilities of engineering education than the bill introduced into Congress by Hon. Justin Morrill, of Vermont, and commonly known as the Land Grant Bill. The original bill introduced in 1858, was vetoed by President Buchanan, but in 1862 Senator Morrill again presented the bill, and on July 2 President Lincoln's signature made the bill a law.

Times were hard; the country was in a state of confusion and uncertainty; the interpretation of this law as passed was different in various States, and many sad mistakes were made during the history of the founding of these institutions. The conception was in itself wonderful, and, in spite of many serious mistakes on the part of the different States, a new era was opened to engineering education by the passage of the bill. The conditions of the law were that for each senator and representative in Congress the State should receive 30,000 acres of public lands, open for sale at \$1.25 per acre, or instead each State was to receive scrip to be sold for the benefit of the State. For various reasons, misunderstanding of the law, a feeling of impatience or uncertainty, trickery or bad management, nearly all of the States failed to realize the full \$1.25 per acre, and the majority received but a very small portion of this amount, one State receiving as little as 41 cents per acre. One State stands as a marked exception, viz, New York. Through the wisdom and caution of Mr. Ezra Cornell the investment was made to realize between \$6 and \$7 per acre on all but a small portion, which had been sold before Mr. Cornell secured control at 53 cents per acre. The result was that New York State received forty-two per cent of the amount realized from the total grant from her share of scrip, which was only about ten per cent of the total. The benefits resulting from the wisdom of Mr. Cornell have been most apparent in the progress of the excellent institution bearing his name. Nine States only succeeded in securing as much as the \$1.25 per acre, and of these Tennessee received the least, \$1.34. The nine States to invest to good advantage were Tennessee, Wisconsin, Florida, Michigan, Iowa, Minnesota, California, Kansas and New York, the last three receiving more than \$5 each per acre. These nine States received for 2,459,950 acres the sum of \$10,633,860, while the remaining twenty-nine received for 7,117,920 acres only \$5,232,512. Considering this most unfortunate start, the positions occupied by the various State institutions at the present

day are most flattering, as each State has since endeavored to live up to the letter of the law, and has made up the initial loss to a certain extent by liberal appropriations from time to time. The clause of especial interest in the Morrill act refers to the use of the funds derived from the proposed sale of lands and States that the income should be appropriated "to the endowment, support and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and other mechanic arts in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The States accepted the responsibility and each State established its institution. In most States one institution only, including the courses in agriculture and the mechanic arts, was established, but Massachusetts made an exception, granting to the Institute of Technology, which was then coming to the front, a portion of the fund for its technical departments, the remainder going to establish the Agricultural College at Amherst. In a few States the fund was directed toward the development of the necessary departments in instructions already established. Thus came into existence a large number of colleges, the majority of which were to advance the interests of engineering education and many of which were destined to become leaders among the numerous universities of learning of the present day.

From time to time since the advent of these institutions, institutions founded by private funds have been organized, until to-day the opportunities for study in the varied lines of engineering are so numerous and of such excellent quality as far to surpass the wildest dreams of the early promoters of such education. Not alone are there modern technical institutions where these various branches form the principal courses of study, but the old conservative universities have opened their doors and are striving to establish departments of engineering that shall rival those of the leading technical institutions.

TELEGRAPH AND TROLLEY POLES OF REINFORCED CONCRETE.

AMONG the numerous and various uses for reinforced concrete for construction of all kinds—from its use for building swimming basins and tanks, which signalled its first appearance, up to the complete construction of entire large buildings, of which at present there are in every country many prominent examples, and for all classes of public purposes, such as highways and hydraulic uses—a new feature of its application, which is the construction of reinforced concrete poles for carrying overhead wires, has lately claimed attention, and, although at present limited to only a few test cases, it promises, however, to have an extensive development, as it fulfils all the requirements of a growing demand in the industrial world.

Recently, Engineer Porcheddu, of Turin, Italy, had two such poles constructed, according to the Hennebique system, each of them being 36 feet long and having a section 13.8 by 13.8 inches at the bottom and 6.3 by 6.3 inches at the top, with a frame calculated to resist a pull of 440 pounds applied about 29.5 feet above the ground.

The management of the Upper Italian Electric Company desired to make experiments as to the resistance of this class of poles, and Engineer Porcheddu submitted for this purpose the two poles above mentioned.

In the presence of the manager and engineers of the above-mentioned company, these poles were tested until one of them broke. The following is the statement made by Mr. T. Battaglia, engineer of the Upper Italian Electric Company, on the results obtained from these tests.

The pole tested was secured in the ground to a depth of 6.4 feet, and an iron collar was placed at a distance of 23.6 inches from the top, which was about 27.7 feet above the ground. This collar was provided with a hook, to which the pulling force was attached. For the purpose of measuring the deflection of the pole a plumb-line was fastened at a distance of 27.7 feet from the ground, from which the displacement could be read off on a register placed above the soil.

DEFLECTION FROM THE VERTICAL.

Tension shown by the dynamometer.	When under stress.	After the stress was relieved.	Observations.
Pounds.	Inches.	Inches.	
265	0	0	Unsteadiness due to the irregularity of the pull.
1360	3.58	0	
1325	8.86	0	
2205	8.86	0	A horizontal crack noticed 8.2 feet above the ground.
2650	9.26	0	
3310	19.50	5.51	Section of break 115 feet above the ground.
4410	broke		

The break was similar to that which would have occurred in a fibrous substance; the upper portion was inclined about 30 degrees from the vertical. The broken end would have required a force of about 1,100 pounds to have pulled it to the ground. The splendid results obtained from these experiments were far beyond the most

¹ Extracts from a paper by Robert Heywood Fernald, Member Engineers' Club, of St. Louis, Mo., read before the Club Feb. 18, 1903, and printed in the *Journal of the Association of Engineering Societies*.

optimistic expectations, and they induced the management of the Upper Italian Electric Company to invite the engineers of the provincial and municipal government, as well as railway engineers, to be present at the tests of the second pole. In the presence of many engineers, who courteously accepted the invitation, the second pole was tested, and the following results were obtained, as stated by the engineer. The size of the pole and the testing conditions were the same as for the first pole. Before submitting the pole to the test the electric resistance of the portion between the upper collar and the base was measured, and the result was found to be 40,000 ohms. Rags soaked in a soda solution were used to obtain the contact between the hoops and the cement, being placed between the same.

DEFLECTION FROM THE VERTICAL.

Tension shown by the dynamometer.	When under stress.	After the stress was relieved.	Observations.
Pounds.	Inches.	Inches.	
464	1.07	0	
927	3.35	0	
1300	5.51	0.73	Gradual slacking.
1520	7.29	0.73	
1960	10.65	0.73	
2180	14.50	1.58	Sudden slacking.
2205	14.98	2.76	Gradual slacking.
2870	15.38	2.76	
4015	29.40	2.76	
4410	broke		

After the break the point of the pole was bent down to the ground by a pulling force of about 1,100 pounds. Both poles were thus proved to be very elastic, breaking only under a pull that was about two and a half times that for which they were originally constructed. Such a combination of resistance and elasticity, together with the fact of practically no cost of maintenance, as they are indefinitely durable, evidently makes concrete poles superior to those of wood or iron, and there is no doubt of these facts insuring a splendid future for this new use of reinforced concrete. Later, two of these poles were constructed by the firm of Wild and Abegg, and at their request they were set along the provincial highway between Borgone and Bussoleno. The poles were prepared in the yard and shipped to their destination, where they were set in the ground two metres and secured in place by a layer of common cement. — *Cement.*

ARTISTS' RIGHT OF REDEMPTION.

THE Paris *Chronique des Arts* contains an interesting account of a movement set on foot by the French Society, Les Amis du Luxembourg, to provide artists with a more adequate return for their work. It is notorious that many great painters have reached old age without having earned enough to make them comfortable, and yet have seen other men grow rich upon the works which they, the painters, sold for a song in the days when it was a struggle for bread and butter and their names were still unknown. The example of Millet is cited. Most of his masterpieces cannot be bought, to-day, if offered for sale at all, for less than one hundred times what the artist received for them. Even before his death Millet saw his early pictures sold for sums that seemed fabulous to him. It is quite possible than an artist may do work while young and still unknown which he cannot approach in later years, when privation or misfortune may have robbed him of inspiration or power; the money value of his productions may rise to respectable proportions only when it is too late for him to profit. It may be some sort of satisfaction to an artist to see a picture for which he received \$100 resold twenty years later for twenty times that sum, but his satisfaction would often be vastly increased could he share in the profit thus realized by someone else.

Several suggestions looking to a remedy for this apparent injustice have been made by the society in question, only one of which seems to be regarded as worthy of further consideration. The plan put forward is to give every artist the right during his lifetime to buy back any of his pictures he chooses by paying ten times what he received for them. Under such an arrangement all picture sales, unless it was otherwise stipulated, would be conditional. It might be argued that such a restriction would discourage buyers, but the buyer who might be called upon to surrender a favorite picture which had graced his walls for perhaps twenty years, would really have no grounds for complaint; he would have enjoyed the sight of the picture for all those years, and he would receive back his money with generous interest. More than that, he would have the satisfaction that comes of a good deed done. It cannot be pleasant for a man to know that while he has on his walls a painting worth thousands of dollars, the painter of it is in need of hundreds.

The objections to any such scheme are obvious. The young painter is often too glad to sell his pictures at any price to stipulate for any conditions, unless these are made obligatory upon the whole guild. Speculation in pictures is a large business that would not flourish under any scheme for limiting the possible profits. One American painter to whom this French proposal was outlined said: "It is hard enough to sell pictures now. Buyers are timid enough as it is; if we tied a string to our pictures, we might as well prepare for starvation. Every man likes to get something for nothing, or to think he is doing so. When I sell a picture the buyer is getting a great deal for almost nothing, and part of the inducement to buy is

that some day the picture will be worth dollars to the buyer where he paid cents; that will show his art instinct and good judgment, and enable him to pose before his friends as a connoisseur. And, after all, we painters ought not to consider money in connection with our work. The artist's reward is in the pay he gets out of his work. If he doesn't get that, he doesn't deserve any other reward." — *N. Y. Evening Post.*

A PLEA FOR UNIFORMITY IN THE ARRANGEMENT OF BUILDING LAWS.

IT is greatly to be desired, now that cities and towns throughout the country are providing themselves with building laws, that they shall be arranged in such a manner that architects and others, consulting them for the first time, shall be able to find quickly the provisions that may apply to the particular case in hand, without the expenditure of unnecessary time. Building laws are generally so voluminous, and are often arranged in such a puzzling manner, that, even when provided with an index, it is necessary to read through the whole of the law from beginning to end, to make sure that nothing essential is overlooked.

As an illustration of the foregoing proposition, I cite the following: —

In a certain building law, under the heading "Tenement-houses" are found various provisions which apply not only to "tenement-houses" but to other classes of buildings as well: under a section dealing ostensibly with "School-houses" are found provisions relating to tenement-houses; in the chapter devoted to "Plumbing" is found an important regulation which would naturally be looked for under the general provisions of the law, and so on.

It is the object of the present essay to outline a general scheme, or plan of arrangement for building laws, which if generally adopted would result in a great saving of time to architects and others who are obliged to consult them. It is hoped that these suggestions may fall under the eye of some one who may be actually engaged in re-modelling an old law or preparing a new one.

In general, the plan consists in classifying the various provisions of the law according to the purposes which they are designed to effect.

So far as is known to the writer, the various purposes for which building laws are ostensibly enacted are as follows: —

First: To insure the life and limb of the public against injury caused by the collapse or failure of structures. *Second:* To prevent the occurrence of conflagrations and to provide for the escape of occupants of buildings in case of fire. *Third:* To safeguard the public health in so far as it may be affected by unsanitary conditions in buildings. *Fourth:* To prevent encroachments of structures upon public ways or the property of adjoining owners, and to safeguard the public in their rights of light and air. *Fifth:* To promote, as far as may be considered advisable to do so by building regulations, the aesthetic improvement of cities and towns.

The proposition is submitted that any building law or regulation which does not come under one of the above headings is an unjustifiable interference with private ownership.

Following the classification above given, the natural arrangement for all building laws would be as follows: —

DIVISION I.

Provisions governing the administration of the building law:

1. Jurisdiction of the building law.
2. Definition of technical terms.
3. Organization of the building department.
4. Duties of the department.
5. Board of appeal.
6. Filing plans and taking out permits.
7. Penalties.

DIVISION II.

Laws designed to insure the life and limb of the public against injury caused by the collapse or failure of structures:

1. Quality of materials to be used in structures.
2. Data to be used in determining the strength of materials and in computing the sizes of structural members.
3. Precautions to be taken in making excavations for structures.
4. Design and construction of foundations.
5. Thicknesses prescribed for masonry walls and specifications to be observed in their construction.
6. Regulations concerning strength of floors.
7. Specifications to be observed in structural work of wood, such as framing of floors, construction of columns, trusses and other details.
8. Similar specifications for structural work in iron and steel.
9. Precautions to be observed in the installation of elevators and lifts, with requirements for safety appliances.

DIVISION III.

Laws designed to prevent the occurrence of conflagrations and to provide for the escape of occupants of buildings in case of fire:

1. Specifications for fireproof construction.

2. Cases in which fireproof construction is required.
3. Restrictions of height of buildings in certain cases.
4. Restrictions of area in buildings in certain cases, by the use of intercepting fire-walls.
5. Provisions regulating the distance between buildings in certain cases.
6. Provisions requiring fire-stops in certain cases.
7. Precautions to be observed in the construction of chimneys.
8. Precautions to be observed in the installation of heating and cooking apparatus.
9. Precautions to be observed in the construction of vertical shafts in buildings, such as elevator-wells, dumb-waiter shafts, ventilating-shafts and the like, for the purpose of diminishing the vertical hazard.
10. Specifications for the construction of intercepting fire-walls, and requirements concerning the use of fire doors and shutters in certain cases.
11. Increase in thickness of masonry walls required in certain cases, over and above what might be required for stability alone.
12. Requirements concerning means of egress from buildings in case of fire.
13. Specifications for the construction of fire-escapes.
14. Special provisions for theatres, school-houses, tenement-houses and other buildings of a public or semi-public character.
15. Special restrictions governing the erection of wooden buildings or non-fireproof buildings of any sort.
16. Installation of gas-piping.
17. Installation of electric wiring.

DIVISION IV.

Laws designed to protect the public health in so far as it may be affected by unsanitary conditions in buildings:

1. Plumbing regulations.
2. Restrictions concerning stables.
3. Regulations designed to ensure proper light, air and ventilation to the occupants of hotels, tenement-houses, school-houses, and other buildings of public or semi-public character.
4. Light and ventilation of water-closet apartments.

DIVISION V.

Laws designed to safeguard the public in their rights of light and air:

1. Limitation of the height of buildings.
2. Restrictions governing the projection of cornices, bay-windows and other constructions.
3. Restrictions governing the slope and height of roofs, chimneys and sky-signs.

DIVISION VI.

Laws concerning the maintenance of buildings:

1. Numbering of buildings.
2. Regulations as to coal-holes.
3. Use of elevators and lifts.
4. Regulations as to the care and maintenance of fire-escapes.
5. Depositories for ashes.
6. Regulations as to distribution of loads on floors.
7. Provisions for night watchmen in certain cases.

The classification outlined above is not intended to be complete, but is submitted as a logical and practical scheme for the construction of a building law. It is the result of a careful study by the writer of the law of a certain Massachusetts town, and in this case it was found entirely possible to rearrange the law according to the above scheme. Only in the case of a single provision was there any question under which heading it should be placed.

It is suggested that any existing building law, in whatever manner originally printed or arranged, could be provided with an analytical "Table of Contents," based on the classification given above, which would be much more serviceable to one consulting the law for the first time than the most voluminous alphabetical index.

WM. ATKINSON.

SOME WARNINGS.

IN his inaugural address on "The Consulting Engineer" before the City and Guilds Technical College, Dr. Alexander B. W. Kennedy, F. R. S., closed with the following admonition, which is as applicable to architects as to engineers:—

"There are still two or three matters about which I would like to speak to you, although it is with some hesitation that I do so. It has happened in late years, especially in connection with electrical work, that a great many very young men have been fortunate enough to get into positions of considerable responsibility, with the drawback that, in the nature of things, they have not had that knowledge of engineering procedure and that knowledge of the world which is only to be bought by the misfortune of old age. I am afraid that in some cases the want of experience has led to undesirable results. In the first place it is a very dangerous thing for you to own any patents in your own line, no matter how ingenious they are, if you are going to take to consulting work. You cannot put a

patent of your own in your specifications, and you cannot use it at all without disagreeable things being afterwards said. If you are going to advise the use of things to other people you cannot, as professional men, advise the use of things out of which you are going to make money, and it is very undesirable on many grounds, therefore, that you should be the financial owners or the beneficial owners of such patents. Of course, if you are the engineers to works the matter may be different, although in every case it requires to be definitely arranged with your directors; but if you are general consulting engineers it is most undesirable for you to have patents in your own line.

"If you are consulting-engineers also you have absolutely no business and no right to be interested in any way whatever in any manufacturer's firm from whom you can possibly buy anything. Many of the manufacturing concerns are limited companies, and sometimes it may be very tempting to take up shares in them when you know that their work is good, but clearly it would not do for anybody who was going to specify work to be a shareholder in a firm who might possibly tender to his specification. However free from prejudice your mind might in fact be, it is necessary for you not only to avoid wrong, but also to avoid even the appearance of it.

"There is yet another matter which perhaps I ought to mention. There is a very strong temptation to a young man conscious not only of his own merits and ability, but conscious also that he wants to get married and to make money, and that as yet he is known to but few people, to, in one word, tout around for business. That is a thing which must not be. There is, unfortunately, no definite rule, as in the legal and medical professions, against it, but everybody who has done so will be sorry afterwards. It is, of course, a very undesirable thing that business should not come your way, but should go to some other fellow who is not nearly so clever or virtuous as you are. I hope that such experience will not be yours; but even at the worst, you will find it the best policy in the long run (to put the matter on the lowest basis) to do nothing in your own profession which would not be tolerated in any of the other great professions with which we wish to feel ourselves on an equality."

SOME TROUBLES OF THE EXPLORER.

PROFESSOR FLINDERS PETRIE says in the *London Times*:—

"Unhappily, the growing lawlessness of Egypt, which Lord Cromer noticed in each of his recent reports, has affected our work, and 'a large number of offences, not very serious in themselves, but which cumulatively become serious, have been committed, and but too often have been committed with impunity.' (Report, 1902, p. 40.) A statue was stolen from my house; and though the footprint of the thief exactly agreed with the very peculiar foot of one of the men who were notoriously accused in the village, and all the links were named by witnesses, yet no conviction could be obtained; £35 are said to have changed hands as bribes over this. Next, my workmen from Qift were subject to a general conspired assault in the market, and each robbed of his money at once. But no redress whatever could be obtained. The police officer added to the injury by taking away one man who had been beaten to see the doctor, who did nothing but detain him till he paid 10s. bribe to be let go. Last year the relations of a man who died of fever were mulcted of £6 by another doctor; and, on my complaining, the official inquiry resulted in giving an account which was absurdly false, to my personal knowledge.

"It is impossible that the present machinery can work to elicit the truth. Witnesses are examined by petty officers, who dictate the final statement of evidence at their own will; and the witnesses are summoned, through their sheikh, who is the first man to be 'squared' by the offenders, and, 'who, they think, will assuredly sooner or later endeavor to wreak his vengeance on them.' (Report, p. 36.) Such a system, dating long before the British occupation, is the most perfect for facilitating bribery and the suppression of truth. This is not the place to discuss the remedies. Happily Lord Cromer considers that 'the points which most require attention are the police, the Department of Justice and sanitation.' I do not touch on more personal threats to our party and being fired at, as I only wish here to refer to the failure of justice. But matters have gone so far that we must look for safety to our own resources rather than to the law, which has in each case proved to us useless."

BOOKS AND PAPERS.

HOW in the world can all the illustrated reviews pay, except by their advertisements, and how can the advertisements pay the advertisers, as the circulation of such reviews must be limited?

The *Burlington Magazine* is a marvel which suggests the above queries, to which another question that occurs to the mind of the writer may be added: How many persons can afford to give ten guineas a year for the twelve monthly parts printed on hand-made paper with special plates, and bound in Japanese vellum? Of course there are multitudes of millionaire connoisseurs nowadays, but so are there multitudes of art books—they grow like mushrooms. But does art culture increase? Judging from the tip-top exhibitions, No; only,

of course, we must take into consideration that Academicians may not be able to invest in artistic publications, even though their fellows help them, through the Chantry Bequest, to obtain 1,000 guineas (or 2,000 guineas was it?) for pictures of models clad in stage armor made of cardboard and gilded with Dutch gold.

The printing of the *Burlington* is of the type so much beloved of William Morris. Is it handier to read than the best modern type? And does the division of paragraphs by a ¶, à l'antique, instead of by a new line, add to the ease of the reader? Is not this a fad akin to rough edges? But the substance of the review is good; it is more thorough than that of the *Connoisseur* which appeals to the mere amateur collector. As to whether the reproductions of pictures, etc. are superior is doubtful — those in the August number of the *Burlington* are certainly no better than some in the earlier numbers of the *Connoisseur*.

The articles upon the Winchester College plate and the Somerby pictures are very excellent and exhaustive, and the reproductions of Reynolds's pictures of the Cardinal and the Theological Virtues are very beautiful. They were painted as designs to be reproduced upon glass for the great window at New College, Oxford. Unfortunately the glass-workers of the day knew nothing of that art, and consequently the designs are mere paintings upon glass. If the visitor looks at the other windows of the chapel he will see fine work of an earlier date (fifteenth century), excellent examples of what painted windows, as people say, ought to be; i. e., stained glass, transparent and translucent.

In the current number of the *Architectural Review*, there are some photographs of Stevens's model of the horse and rider upon the Wellington Monument as seen from all sides; the result being, condemnation of the design. Knowing what a great sculptor Alfred Stevens proved himself to be, we may be sure that if he had seen his horse *in situ* he, too, would have condemned it. Were we able to look at the monument from a proper distance, it might be effective; but as close as one is compelled to stand, the horse and man appear as monstrosities. And so, as we cannot have the artist's own model, why finish the monument? Surely it is best to leave well enough alone? There is no work of modern times superior to Stevens's — it ranks with the great Italian monuments of the best period, and it were a grievous pity to mar its fine effect by adding a horse and rider by some other sculptor, as any group must infallibly have the effect of being crushed by the arch. It is sad that the monument could not have been placed at the end of the nave facing east. What a grand effect it would have had out in the open space!

A most interesting account of the temples of Philæ by Mr. Ronald Jones shows us, unhappily, the great temples half immersed, and he holds out little hope of their reappearance to Western eyes, as few Europeans would care to go to Egypt between the months of April and December. Could no scheme be devised to preserve the temples? Here is a fine opportunity for an architect and a sympathetic millionaire. Why not unpick the Temple of Isis and rebuild it upon the mainland in a safe place?

ILLUSTRATIONS

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

HOUSE OF REID NORTHRUP, ESQ., ST. LOUIS, MO. MR. W. ALBERT SWASEY, ARCHITECT, ST. LOUIS, MO.: TWO PLATES.

NO. 135 BAY STATE ROAD, BOSTON, MASS. MR. JAMES MULCAHY, ARCHITECT, BOSTON, MASS.

TRINITY MEMORIAL P. E. CHURCH, WARREN, PA. MR. F. G. W. DIETRICH, ARCHITECT, NEW YORK, N. Y.

PÆSTUM: AFTER A WATER-COLOR. BY MR. W. L. WELTON.

TWO TERRA-COTTA ROBBIAS FROM OR SAN MICHELE, FLORENCE, ITALY. DRAWN BY MR. W. L. WELTON.

Additional Illustrations in the International Edition.

THE LIBRARY: HOUSE OF MRS. A. W. ARMOUR, KANSAS CITY, MO. MESSRS. VAN BRUNT & HOWE, ARCHITECTS, KANSAS CITY, MO.

DINING-ROOM IN THE SAME HOUSE.

DETAIL OF COLONNADE OF THE LOUVRE, PARIS, FRANCE. MEASURED AND DRAWN BY MR. W. L. WELTON.

THIS and other subjects in this issue represent some of the work done by Mr. Welton while holding the place of a Rotch Travelling Scholar, a couple of years ago.

DETAIL OF THE GRAN GUARDIA VECCHIA, VERONA, ITALY.

A PAVILION ON THE PLACE ROYALE, RHEIMS, FRANCE.

COURTYARD DETAIL OF THE UNIVERSITY, PADUA, ITALY.



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

AN EXAMINATION OF STEEL SKELETON WORK.

PROVIDENCE, R. I., Sept. 1, 1903.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—As a contribution to the discussion of the effect of cinder concrete in fireproof skeleton construction, the examination which we have been able to make of a building erected five years ago under our supervision, may be of interest.

The building is five stories high, of skeleton construction of "Z-bar" columns and steel beams, which had a coat of red lead before delivery and another coat after erection, with outside walls of brick surrounding the columns in which they are imbedded. The interior steel-columns and the lower flanges of the beams are protected with hard plaster on wire lathing. The floors are of cinder and Portland-cement concrete laid on $\frac{3}{4}$ -inch expanded metal, 3" x 6" mesh, 1 inch of the concrete above the expanded metal and 3 inches below it, and the concrete is carried down to the bottom flange of the beam in the usual manner. The beams in the floor are 4 feet 6 inches on centres and were made of a depth to carry safely a live load of 250 pounds per foot.

The work was, much of it, done in the late fall and early in the winter of 1898, some of it being exposed to very cold weather and most of it to severe rain storms before the building was roofed in. After the building was roofed in and the concrete had thoroughly set, but before the building was finished, a test was made of the strength of the concrete floor-plates, which were loaded up to 900 pounds per square foot without injury and with but slight deflection.

Since the completion of the building the floors have been almost constantly loaded up to 400 pounds to a foot in nearly every part of the building.

We have been called upon to drop the first-story floor 2 feet 8½ inches while the tenants, wholesale and retail grocers, were carrying on their business, and as the floor which was lowered was used for putting up goods for delivery and also for the delivery of the goods to the teams, the business could not be interrupted, but had to be carried on without interruption while the work was in process.

To do this work it was necessary to expose in very many places the steel frame where it was embedded in the brick wall, where it had been enclosed in the cinder concrete and where it had been protected with steel lath and patent plaster. In no case was there any indication of corrosion, the paint showed scarcely any sign of discoloration and upon scraping the paint the metal under the paint was as bright as when it left the shop. Guide numbers painted on the beams in the shop could easily be read.

The expanded metal in some places showed very slight signs of rust, but not enough to cause any apprehension, and apparently corrosion had stopped.

There seemed to be no indication of rust around the rivets, which had to be driven out, on the brackets which were removed and used again in their new location, or on the "Z-bar" columns behind the brackets.

The concrete plates which were uncovered showed no signs of fracture, and the concrete floors were so solid and firm that the work of cutting the channel to separate the floors from the side walls of the building was no easy task.

There is an elevator enclosed by a partition made of 4-inch terra-cotta blocks, laid up in lime-mortar between vertical tees, 1¼" x 1¼" x ⅜", set 18 inches on centres on both sides of the partition to stiffen the same. This partition was plastered both sides with hard plaster to a thickness of about ¾ inch over the terra-cotta and ½ inch over the tees. The tees in this partition show more signs of rust than any other of the work, but these tees were not painted and it is evident that the rust was formed before the plastering dried and has not increased since it dried out.

From a very careful examination of this building, which was built without any special care to prevent rust, except the two coats of red lead referred to, there would seem to be no warrant for the apprehension which has been expressed as to the imminent or even remote danger of the destruction and collapse of skeleton buildings with cinder-concrete and expanded-metal floors and beam-covering, and plaster column-protection. Very truly yours,

STONE, CARPENTER & WILLSON, ARCHITECTS.

NOTES & CHIPPINGS

THE BERING TUNNEL FALLACY.—Once more the chimerical scheme for building a railroad from the Pacific coast terminus of the transcontinental railroad systems to Alaska, and carrying the road beneath the Bering Strait by a tunnel to connect with an extension of the Siberian Railroad, is being agitated. The improbability of such a railroad being built, or if built, being made financially successful, can only be understood by taking a map of North America and tracing the proposed course of the line. It will then be seen at a glance how vast are the distances which this proposed road must cover. From Vancouver on the Canadian Pacific line to Bering Strait is at least 2,500 miles. The Bering Strait would involve a tunnel nearly sixty miles in length, that would have to descend several hundred feet below sea-level to find a stratum suitable for tunnel operations; then on reaching the Asiatic shore, there would be another stretch of about 2,700 miles to be surveyed and constructed before connection was made with the present Trans-Siberian system. The difficulties in locating and building such a line can only be understood by engineers who are familiar with the physical and climatic obstacles to be overcome. No mere hasty reconnaissance would be sufficient to give even an approximate estimate of the cost of the Trans-Alaskan portion of the route. As to the construction of the tunnel, the mere preliminary borings to ascertain the character of the material to be encountered would be an enormously formidable task in itself, and when this was successfully completed, there would still be a grave element of doubt as to the practicability of keeping the tunnel free from an inrush of water which, if it should occur under the pressure due to the great depth, could not fail to be disastrous. We are aware that the enthusiastic promoters set down the cost of the sixty-mile tunnel at \$20,000,000; but when we consider that the twenty miles of subway tunnel in this city are to cost \$35,000,000, it is pretty safe to say that the \$20,000,000 would not be sufficient to cover the cost of the tunnel and the surveys, to say nothing of the 5,000 miles of connecting railroad that would be necessary. Even if the engineering difficulties could be overcome (as undoubtedly they could with sufficient time and capital), where is to be found a body of financiers to put through an undertaking which could not possibly render any return on the investment for many a decade to come, if ever it did? Moreover, even if the road were built, it is pretty safe to say that it would have to depend almost entirely upon the passenger and local traffic for its development; for it could not possibly hope to compete in the carriage of freight with the large merchant steamships that are being built for the Trans-Pacific trade. The idea of an all-rail route from Paris to New York is picturesque, sentimental and quite impractical. It is certain that in the present stage of development of northwestern America and northeastern Asia, the scheme will never get beyond the paper stage. — *Scientific American*.

THE FOUNDATION OF ST. MARK'S TOWER.—The rumors about the irremediable condition of the site of the Campanile of St. Mark, Venice, do not appear to be exaggerated. The correspondent of the *Scotsman*, who, since the collapse of the structure, has been able to obtain accurate information on all points relating to the proposed works, says it was taken for granted that the old foundations continued to be stable throughout their depth. They are visible, and he says: "The sight is not a little surprising." The lower courses are found to be of smaller and unhewn stones, not too carefully laid, and apparently thrown down in hot haste to keep out the water. They are of Istrian sandstone, liable to absorb water and to disintegrate. Common lime mixed with sea-sand was used for mortar. The result is, says the correspondent, that the salt water has percolated through and through all the foundations of the Campanile, below the level of high-water mark, which is the level of the piazza, and has disintegrated the mortar and washed it out. As the tide falls in the lagoons the water trickles all through among the foundation-stones, running in little streams in places. Again, the foundations of the Campanile have a list towards the Doge's Palace. This at the level of the pavement of the piazza is nine centimetres, or $3\frac{1}{2}$ inches, which is not much, but as the tower ascends, it would amount to a great deal. Once more, hydraulic lime will not attach itself to ordinary mortar. There would be difficulty in uniting the old with the new. Lastly, the foundations are split from top to bottom where the door of the Campanile was. The architects, engineers and builders are said to consider it would be madness to build on foundations which have served for a thousand years. The correspondent concludes by saying: Now is the time to agitate for the rebuilding of an artistic Campanile on another site, and leave the Piazza of St. Mark, the drawing-room of Venice, free in all its amplitude of beauty as it is to-day. — *The Architect*.

COSTLY SAWS IN SLATE QUARRIES.—Probably the most expensive saws in use anywhere in the world are those in the factories of Pennsylvania where various articles are manufactured of slate. In one of these factories there are 300 horizontal saws, 12 feet in length, each of which is furnished with seventy-five cutting diamonds, each saw being worth \$5,000. The slate land which furnishes the materials for these costly saws to work upon was once so little valued that the tract upon which the famous Chapman quarry in Pennsylvania is situated was sold for a pint of whiskey. Its subsequent owners have taken millions of dollars from the land. The most valuable slate deposits in the world are found in the central and eastern parts of Pennsylvania. In the neighborhood of the Pennsylvania quarries there are houses whose walls are entirely of slate. The blocks of which they are made are smoothly sawed, and are certainly most substantial. When slate

is blasted in the quarries the rough slabs are taken to the shanties of the "splitters." The stone forms naturally in layers, and the "splitter," following the grain or "ribbon" with his large chisel, separates the blocks into strips. Then these strips are passed through a trimming machine, where by the blows of a heavy knife they are cut into rectangular "shingles." Then they are piled up into "squares," ready to be used for roofing purposes. When slate is cut up for use in other ways the procedure differs. The huge horizontal saw, with its scores of diamonds in the factory, is called into play; it is lowered upon one of the blocks of slate by a ratchet at the rate of a quarter of an inch a minute. The saw would cut through iron or steel at the same rate. The workmen play a stream of water upon the slate to keep it cool, and wash the dust from the cut. After the sawing the block is planed by being moved back and forth by machinery under a firmly fixed chisel. It is afterwards polished, much as marble and granite are. — *Philadelphia Ledger*.

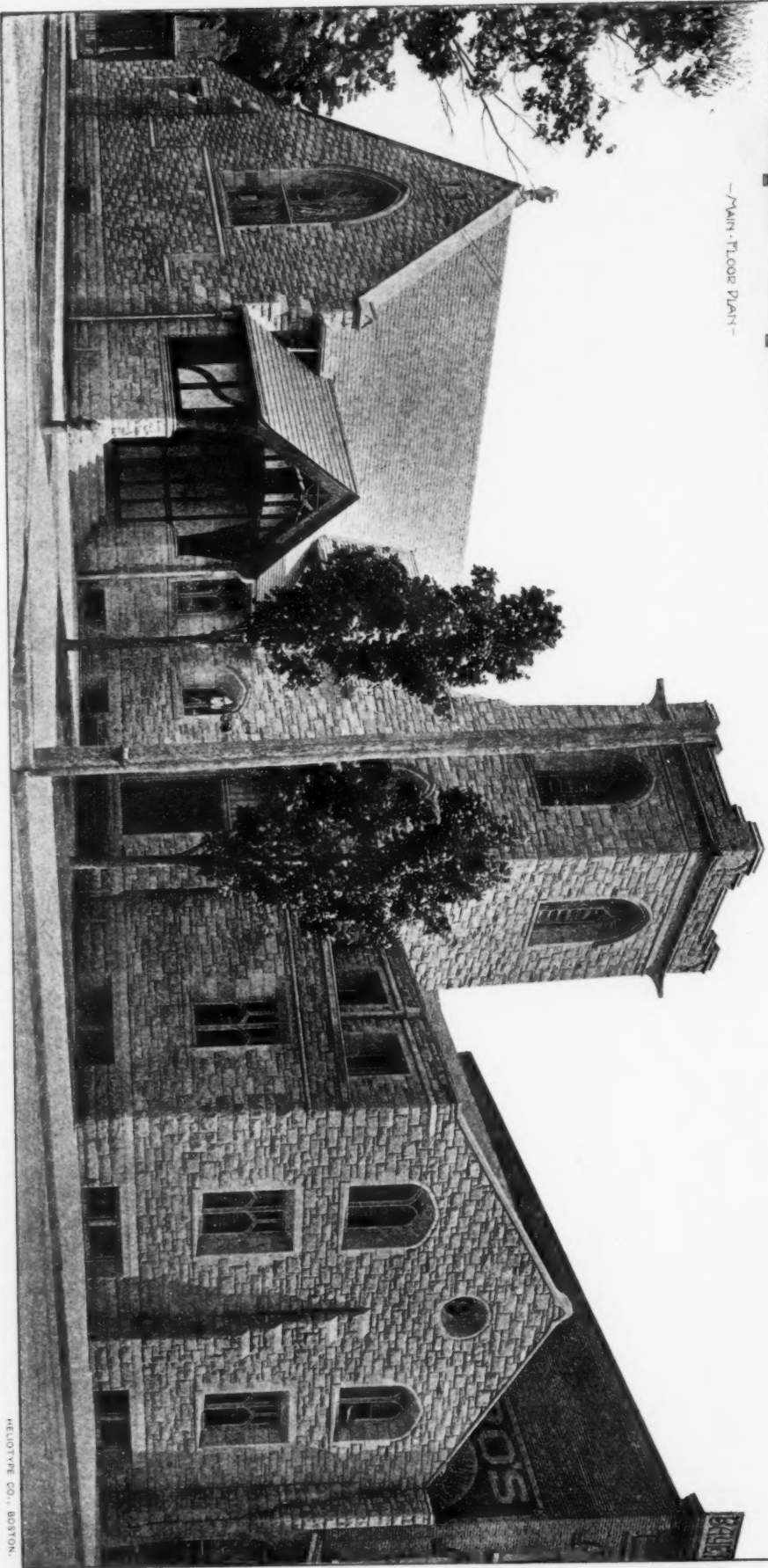
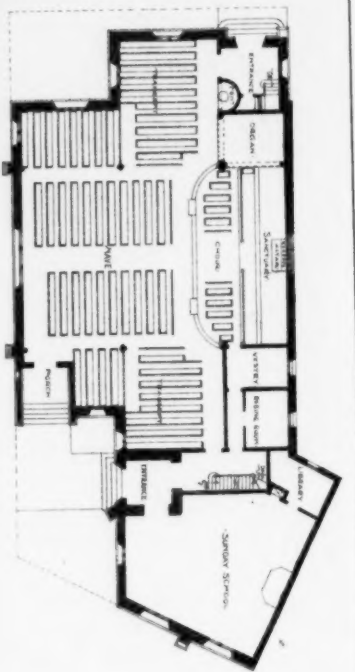
UNSEALED WRITTEN CONTRACTS.—In an action on a mechanic's lien, brought by the Eagle Iron Works against Thomas M. Farley, it appeared that the contract between the parties was in the form of a written offer by the plaintiff to furnish and set certain ironwork on buildings in the course of construction by the defendant for \$3,532. The acceptance of the offer was also in writing. But neither in the offer nor in the acceptance was anything said in reference to the time or manner of payment. The ironworks gave testimony to the effect that after the acceptance, and before it had begun to furnish the iron, an oral agreement was entered into whereby Mr. Farley undertook to pay for the work in installments. As he had failed to pay these in installments, the trial Justice refused to allow the plaintiff to proceed with the work, and rendered judgment for the services and work up to that time. The Second Appellate Division, on appeal, declares untenable the position taken by Mr. Farley's counsel, that because the written contract was an entire one, the admission of evidence of an alleged parol agreement to modify that contract by providing for installment payments was erroneous. "A written contract, not under seal," said Justice Willard Bartlett, for the court, "may be modified before breach by the subsequent oral agreement of the parties. Undoubtedly the existence of a separate oral agreement as to any matter on which a written contract is silent, and which is not inconsistent with its terms, may be proved by parol, if under the circumstances of the particular case it may properly be inferred that the parties did not intend the written paper to be a complete and final statement of the whole of the transaction between them." — *N. Y. Times*.

A TIME-KEEPING FLOWER CLOCK.—The greatest clock in the world, the dial of which will be 120 feet in diameter, is being built for use at the Louisiana Purchase Exposition next year. Only the hands and machinery are being made, for the dial is to be a brilliant bed of flowers. The clock will be placed on the side of the hill north of the Agriculture Building. The minute hand will be 60 feet long and the ring at the end, which will be fastened to the machinery, will be 8 feet in diameter. The numerals marking the various hours will be 15 feet in length and made of bright-colored colesus. In a broad circle surrounding the dial will be twelve flowerbeds, each 2 feet wide and 15 feet long. At night the timepiece will be illuminated with 2,000 incandescent lights. — *Exchange*.

WOMEN AS STREET-CLEANERS.—Mrs. Paul, the woman superintendent of a Chicago ward-cleaning brigade, was recently interviewed by three Italian women who were desirous of joining the force. One of them had worked eight years in her native country at street-cleaning and two years in stone quarries. Another had hauled a milk wagon in company with a dog for one year, had worked in the vineyards near Milan and had laid paving-stones in the streets. The third had carried bricks in Naples, had pushed a wheelbarrow at the excavations of Pompeii and had worked two years in Naples as a freight handler. Mrs. Paul was in favor of employing the women, but the city superintendent of street-cleaning thought not. He was of the opinion that women—even Italian women, with a past of freight handling and milk hauling—had better stick to housework. — *N. Y. Tribune*.

PERCENTAGE OF WORKING-WOMEN.—Consul-General Richard Guenther has just reported to the Department of State from Frankfort some interesting statistics with reference to the occupations of the population of the leading nations of the world, extracted from the latest official German statistics. In the percentage of women employed the United States stands lowest with only 14.3 per cent, the Netherlands and Sweden coming next. In Germany the percentage of females employed to the total self-supporting population is 25, while in England it runs up to 27. In most of the other civilized countries the female population, on account of unfavorable economic conditions, has to contribute in a larger degree to the support of the families. In Italy the percentage is 40 and in Austria 47. — *Exchange*.

THE ORIGIN OF THE HANSOM.—The hansom, about whose safety hard words are now being said in London, was the invention of Joseph Hansom, the architect of the Birmingham Town-hall, and also the founder of our contemporary, *The Builder*. But the two-wheeled cab which he patented in 1834 little resembles the vehicle which now bears his name. It had a square sedan-chair shaped body hung between two wheels nearly 8 feet high. The driver's seat was in front, as also was the door; the fare entered the cab between the wheel and shaft. The modern hansom was adapted from this original by Messrs. Gillet and Chapman. It is a peculiarly English vehicle, and no foreign nation has ever compassed the dogged courage of the Briton who can sit calmly inside it. — *London Chronicle*.

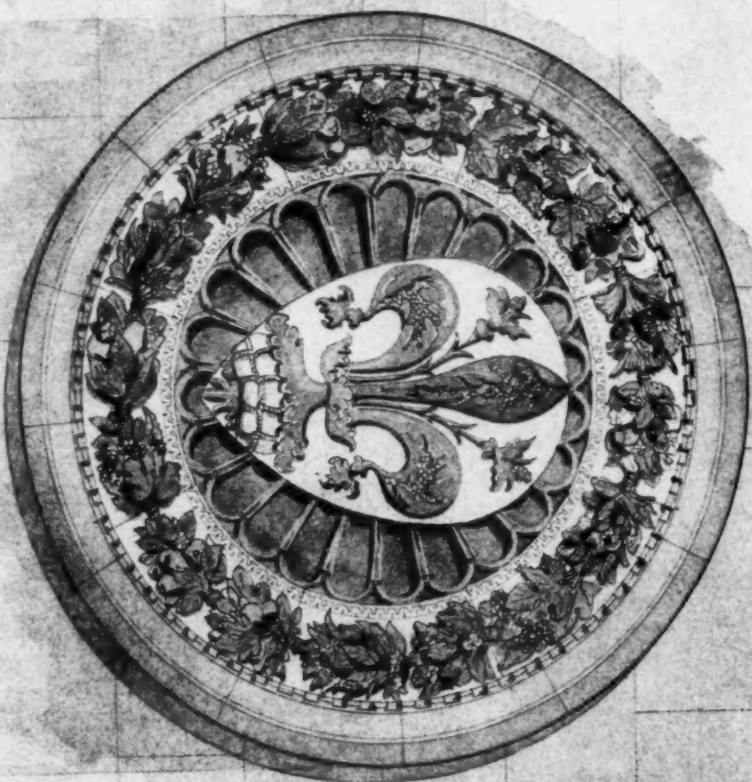


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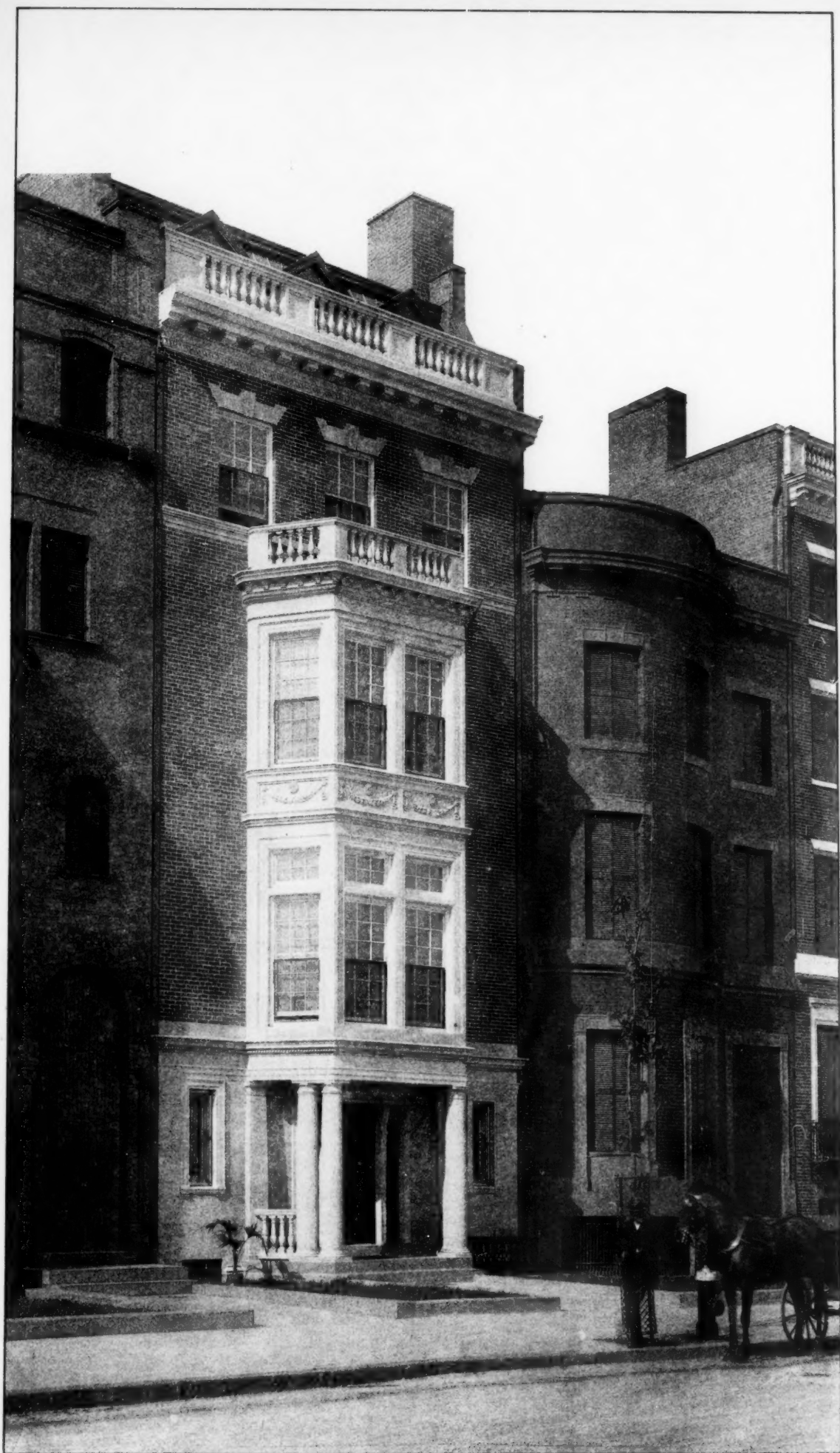


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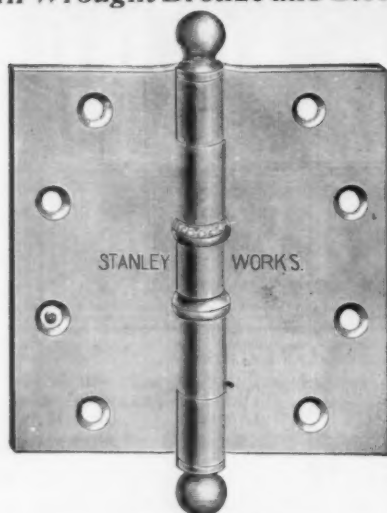
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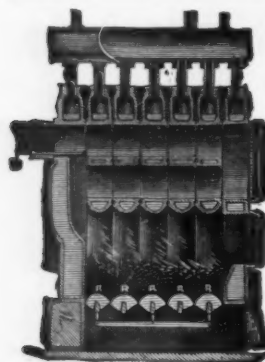
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CODE OF PRACTICE FOR SUB-ESTIMATING AND SUB- CONTRACTING

Adopted by the Master Builders' Association of the City of
Boston, Aug. 2, 1894.

ARTICLE I.

Obligation of Principal Contractor to Sub-Contractor.

A principal contractor is under obligation to treat upon an equal basis all estimates which he "receives" prior to putting in his own bid. Estimates must be considered as "received" when they come into a principal contractor's possession, either by his direct solicitation or by being accepted by him. The opening of a bid, knowing it to be such, constitutes receipt of the same.

A principal contractor is under no obligation to use a bid which he has not solicited, accepted, or received, but if he does not wish to use the estimate of a sub-bidder he should decline it, if proffered personally, or should return it unopened if sent to him by mail or otherwise. The retention of a bid should be construed as a receipt of the same.

A principal contractor, when making up his estimate, is not entitled to receive bids from sub-contractors if he is at the same time making himself their competitor by figuring their portion of the contemplated work. It is legitimate for a principal contractor to figure all portions of work, depending upon no one for what are usually known as sub-estimates, but it is not legitimate for him to receive bids from others for sub-work if he is himself figuring those portions independently.

ARTICLE II.

Award of Sub-Contracts.

The principal contractor having been awarded a general contract should immediately award the sub-contracts to the lowest bidder in each branch.

ARTICLE III.

Penalty for not Awarding Contract to Lowest Sub-Bidder.

A principal contractor failing to award a sub-contract to the lowest sub-bidder to whom he is under obligation as previously provided should be liable to pay damages to the said lowest bidder, in amount not less than ten per cent of the amount of the estimate.

Payment of such damages will not relieve the principal contractor from liability to discipline under provisions of Article X of the By-Laws of this Association.

ARTICLE V.

Payments to Sub-Contractors.

Unless the contracts made with sub-contractors otherwise provide, payments during the progress of the work should be made by the principal contractor to the sub-contractors upon the same basis of payment, in relation to amount of work performed, as is prescribed in the contract made by the principal contractor with the owner.

Final payment to a sub-contractor should be considered as due at the expiration of thirty days after the completion of his work and its approval by the architect or owner, unless otherwise provided by the sub-contract or agreement.

ARTICLE VII.

Obligation of Sub-Contractor to Principal Contractor.

Should a sub-contractor refuse to contract at the amount of the estimate he has given to a principal contractor who has used the said estimate in good faith, he then should be liable to the said principal contractor for damages in amount not less than the difference between the amount of the estimate which was submitted by him and the amount at which the principal contractor may be obliged to contract the work.

Payment of such damages will not relieve the sub-contractor from liability to discipline under provisions of Article X of the By-Laws of this Association.

ARTICLE X.

Bids to Architects or Owners.

When bids for separate departments of work on a building are solicited by the architect or the owner, they should be submitted with the understanding that they are direct estimates, for which direct contracts are to be made by the owner with the lowest bidder, and no other disposition of such bids should be permitted without consent of the bidder submitting the same.

Sub-bids should be given only to the principal contractors who are estimating the work in question, and should not be left with architects or owners for the inspection and information of principal contractors. Sub-contractors must understand that bids thus left with architects or owners are in great danger of losing their confidential character, and that if they so leave them they cannot claim protection or redress under the first article of this Code.

SUGGESTIONS.

Members of this Association having sub-contracts to let, or material to buy, should, as far as may be consistent with business principles, deal only with members of the Association, or at all events give their fellow-members an opportunity to compete, and then give them the preference, other things being equal.

All bidders should take cognizance of the danger they may be subjected to through the practice, so prevalent in some architects' offices, of making change in plans or specifications, or in both, during the progress of estimating. Correction of this pernicious practice can only be obtained through refusal by contractors to estimate under such conditions.

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Independence Hall, Philadelphia, Pa.	" 1729
Faneuil Hall, Boston, Mass.	" 1741
and others.	

CHURCHES

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Seventh-day Baptist Church, Newport, R. I.	" 1729
Christ Church, Alexandria, Va.	" 1767
Christ Church, Philadelphia, Pa.	" 1727
St. Paul's Chapel, New York, N. Y.	" 1764
Old South Church, Boston, Mass.	" 1729
First Church, Hingham, Mass.	" 1681
St. John's Chapel, New York, N. Y.	" 1803
First Congregational Church, Canandaigua, N. Y.	" 1812
St. Peter's P. E. Church, Philadelphia, Pa.	" 1758
Gloria Dei Church, Philadelphia, Pa.	" 1700
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IMPORTANT HOUSES

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Mappa House, Trenton, N. Y.	" 1809
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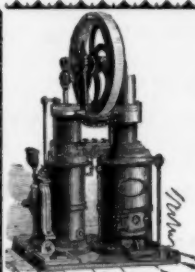
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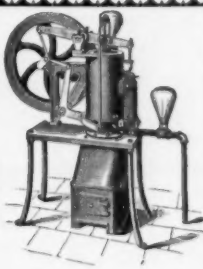
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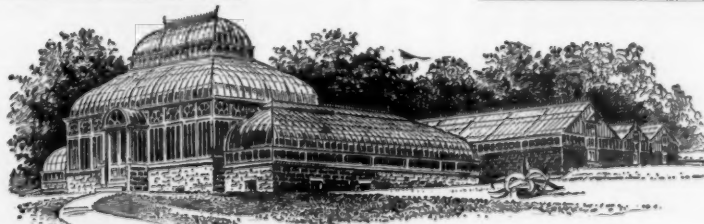
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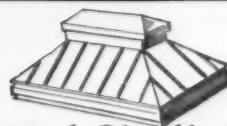
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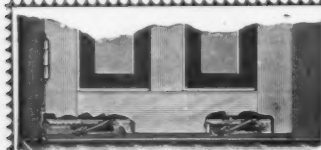
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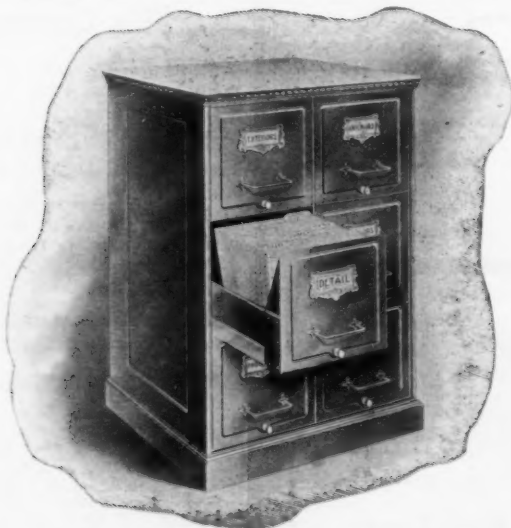
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(Advance Rumors Continued.)

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An apartment-house will be built on 50th St. and St. Lawrence Ave. for L. G. Bullock from plans drawn by Architect W. Alloway, Marquette Building. It will be a three-story building, covering 50' x 52', of brick and stone, to cost about \$20,000.

Cleveland, O.—Builder Paul F. F. Mueller, 823 Schiller Building, Chicago, Ill., has received the contract for a handsome new church which is to be built in this city for the First Methodist Episcopal congregation of this city. Plans by Architect J. Milton Dyer provide for a one-story building, of brick and stone, to be elaborately finished and to have all modern improvements. Cost, \$50,000.

Columbus, O.—Plans for the new physics building for the Ohio State University have been approved by Gov. Nash. The building will be located between Orton and Biological halls and will cost about \$80,000.

Deadwood, S. D.—A five-story office-building is to be erected here from plans drawn by W. W. Beach. Cost, \$75,000.

Des Moines, Ia.—The contract for erecting the three-story brick building at 7th and Pleasant Sts. has been awarded to F. M. Garthwait, of Chicago, Ill., for \$37,000.

Grand Forks, N. D.—The contract for the addition to Grand Forks College has been secured by K. C. Hunter for \$9,253.

Granite City, Ill.—The Lutheran Church and Hospital Association have accepted plans for the hospital to be erected here, at a cost of \$15,000.

Greensboro, N. C.—W. I. Young, of Atlanta, Ga., is to build a cotton mill here at a cost of \$250,000.

Hoboken, N. J.—The plans of Architect Rowland have been adopted for the new No. 11 school-building, and the contract for its erection has been awarded to the Connolly Co. Cost, \$135,179.

Hot Springs, Ark.—A press report states that

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Dugan & Stewart are preparing to build a six-story building here, to cost \$75,000.

Indianapolis, Ind.—Rumor states that O. F. Mann is to erect a three-story brick flat at Illinois and 11th Sts. Estimated cost, \$35,000.

Kansas City, Mo.—The Hennebique Construction Co. has been awarded the contract for the new \$1,000,000 plant for the Proctor Gamble Co. Plans have been filed for a three-story brick apartment-house to be erected at 10th and Tracy Ave. by W. H. Collins, at a cost of \$50,000.

Laconia, N. H.—The contract to rebuild the Masonic Temple here has been awarded to Messrs. Guay & Wallace, of Concord. It is understood that the figures were above \$50,000.

Lawrenceburg, Ky.—Wm. King, of Danville, has received the contract for erecting the business building recently destroyed by fire. Estimated cost, \$50,000.

Lawrence, Mass.—John Ashton, architect, of this city, has prepared plans and bids are being received for the erection of a school here to cost \$200,000.

Linton, Ind.—E. H. Roberts, of Evansville, has secured the contract for erecting the Methodist Episcopal Church. Estimated cost, \$20,000.

Livingston, Mont.—The plans of A. W. Bell, of Helena, have been accepted for the public library for this place.

Los Angeles, Cal.—The Santa Fe Ry. will build a hotel in the Grand Canyon at once. The contract will be let by Ch. Engr. R. B. Burns of this place. Estimated cost, exclusive of furniture, \$50,000.

Macon, Ga.—The contract for the new brick building of A. B. Small & Co. has been let to R. H. Smalling, for \$12,500.

Madison, Wis.—A four-story high-school building will be erected here at a cost of \$200,000. There will be 37 class-rooms, 18 recitation-rooms, and laboratories, gymnasium and manual-training quarters.

Marquette, Wis.—Rumor states that a county poor

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

house and insane asylum is to be erected in Marinette County at a cost of \$75,000.

Mattapan, Mass.—Mr. M. I. Peterson has bought a tract of land containing 17,000 feet at the corner of Oakland and Rexford Sts., and intends to erect a 15-suite brick apartment-house, costing \$60,000. The block is to be built around a court-yard.

Milwaukee, Wis.—The Pabst Brewing Co. are to erect a storage building on 9th St. It will be 40' x 500', and will cost \$200,000.

Murfreesboro, Tenn.—H. W. Cantrell has plans for a hotel to be erected here, at a cost of \$20,000.

Neenah, Wis.—Plans have been prepared by E. E. Stevens & Co., architects, of Oshkosh, for an armory building to be erected here at a cost of \$20,000.

New Ulm, Minn.—The County Board have adopted plans by A. J. Vandusen, architect, of Winona, for a county jail to cost \$20,000. It will be 40' x 66', two-story, brick. Bids will be opened September 21.

New York, N. Y.—Plans and specifications are being prepared in the office of McKim, Mead & White, architects, of 160 Fifth Ave., for the School of Journalism which is to be built for the Columbia University at a cost of \$500,000. The building is to be a brick and stone structure, fireproof, and will have the latest improvements and appliances.

Messrs. Felt & Livingston are about to start work on the twelve-story apartment hotel which they will erect at the northeast corner of Columbus Ave. and 81st St. from plans and specifications by Architect Frederick C. Browne, 143 W. 125th St. The project will cost about \$800,000 and the plans provide for a brick and stone building, of fireproof construction, to contain store on the down floor and apartments on the upper stories.

L. A. Goldstone, 110 W. 34th St., architect, has prepared plans for a five-story brick and stone stable, 87' x 100', to be built at a cost of \$100,000, at 335-341 W. 16th St., for Samuel Green and Daniel Riehm, of 57 Maiden Lane.

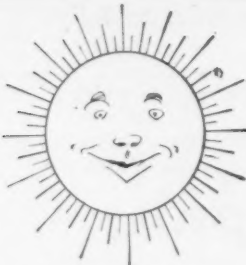
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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

contract for the new hotel to be erected on Columbus Heights, Brooklyn, at a cost of \$300,000.

Architects Bernstein & Bernstein, 72 Trinity Pl., have completed plans and work will soon be started on a new tenement-house which is to be erected at the southeast corner of Grand and Attorney Sts. for Mr. J. Littman, 7 Elm St. Plans provide for a six-story building, measuring 57' x 90', of brick and stone, to cost about \$50,000.

The Christian Brothers in charge of Manhattan College have completed the plans for the erection of a group of college buildings on a twelve-acre site which they recently secured on Broadway, opposite Van Cortlandt Park. The new building will cost the Brothers, when completed and equipped, fully \$500,000. The twelve-acre site was purchased several weeks ago at a figure near \$100,000. The plans of the new college call for a main building six stories high, and several separate buildings for the various arts.

Norfolk, Va. — Little & Turner are to erect a brick livery stable, at a cost of \$50,000.

Philadelphia, Pa. — Work has been started on the erection of the handsome new church which is to be built at the corner of Vodges and Race Sts. for the Epworth Methodist Episcopal congregation from plans and specifications by Stearns & Castor, architects. It will be a one-story structure, measuring 68' x 87', of brick and stone, to have slate roof and to cost about \$25,000.

Wm. Steele & Sons have drawn plans for the new factory which is to be built at the southwest corner of Allegheny and Glenwood Aves. for the American Loco Co. The new building will be three stories high, measuring 35' x 68', and will cost about \$75,000.

Frismuth Bros. & Co. have purchased from the Smalz estate a large tract of land at 17th St. and Glenwood Ave., on which they propose to erect a new tobacco factory.

Armstrong & Latta, builders, are about to start work on the new transfer station which is to be built at 59th St. and Columbus Ave. for the Pennsylvania Railroad Co. at a cost of \$50,000. Plans were prepared in the company's office.

Work has been started on the addition which is to be built to the plant of the S. S. White Dental Manufacturing Co. at Frankford from plans and specifications by Architect Spencer Roberts. Wm. R. Dougherty is the builder and plans provide for a three-story building, 41' x 51'.

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Plans have been prepared in the company's office for a new passenger station to be built at Brunswick, N. J., for the Pennsylvania Railroad Co. It will be a two-story brick and stone building, 35' x 80'.

Rome, Ga. — The Rome Manufacturing Co. are to erect a new brick building here to cost \$15,000.

Salt Lake City, Utah. — J. B. Berry, Ch. Engr. Short Line and Salt Lake Route, has approved plans for the two-story depot to be erected here, at a cost of \$100,000.

Seattle, Wash. — Geo. W. Young will erect a four-story brick hotel building, 69' x 120', from plans drawn by Elliot & West, architects. Cost, \$26,000. Waddingham & Arvesen, contractors.

Springfield, O. — Barber & Klutz, of Knoxville, Tenn., has been engaged to prepare plans for the erection of a residence in this city, for J. S. Crowell, the cost to be \$25,000.

St. Paul, Minn. — Lauer Bros. have been awarded the contract for erecting the new armory. Cost, \$60,000.

Richard T. Crane, of Chicago, has purchased the site at 378 Rosabel St. from D. C. Shepard for \$25,000 and will immediately begin the erection of a new building at this location. Plans for the structure have not been completed, but it is expected to erect a building six stories high, modernly equipped.

Architect Donahue has completed plans for the new St. Joseph's Catholic Church to be erected on Dayton and Western Aves. The structure will be of the Gothic style of architecture, will have a seating capacity of 1,300 and will cost \$155,000.

The St. Paul Building Co. has secured the contract to erect H. E. Thompson's modern brick and stone residence on Summit St., near Avon St. Cost, \$40,000.

Tarentum, Pa. — The Masonic Hall Assoc. is incorporated with a capital of \$50,000, to erect a three-story brick and stone building, 110' x 150', on Second Ave. and Lock St.

Thomasville, Ga. — John Wade, of Cleveland, O., has purchased the Linton property two miles out of the city, and will shortly begin the erection of a \$75,000 home on it.

Topeka, Kan. — The plans of L. M. Wood have been accepted for the new twelve-room school-house to be built here. The building will be two stories with a high basement and will cost \$22,500.

Tunkahannock, Pa. — Architect W. L. Blithe, of this city, has prepared plans for a handsome residence to be built here for Francis Hawke. It will be a three-story brick and stone building, and will cost \$15,000.

Two Rivers, Wis. — The contract for the new school-house has been awarded to Frank L. Wolfe, of this city, the amount being \$43,393. This does not include the heating or plumbing, which will probably bring the cost up to \$50,000.

Vancouver, Wash. — Lister & Scott, of Tacoma, have secured the contract for a brick and stone hospital to be built at Vancouver barracks, at \$53,973.

Virginia, Minn. — The contract for erecting the high school has been awarded to John Donlin, of Superior, Wis. Estimated cost, \$60,000.

Waco, Tex. — All bids opened on August 20 for the erection of the Carnegie Library have been rejected, as all were in excess of the appropriation, which is \$30,000.

West Baden, Ind. — Perley Hale, of Chicago, Ill., has completed plans for the big Colonial Hotel annex, to be built here for the Baden-Lick Sulphur Springs Co. at a cost of \$400,000. The building will have 75' x 350' ground dimensions and will run from six to eight stories in height. Construction will be fireproof throughout, with solid brick partition walls and exterior of red pressed brick and Bedford stone, with red tile roof. Work is to be started early in the fall and is to be completed by May 1 of next year.

Westfield, Mass. — A. W. Houghton, of this town, has been selected to prepare plans for a brick and stone gymnasium for the Y. M. C. A.

Wheeling, W. Va. — Jos. Leiner, Peabody Building, is preparing plans for a ten-story stone front bank, to be erected in this city by Wheeling and Pittsburgh capitalists, at a cost of about \$400,000.

Yankton, S. D. — Anton Dohmen has drawn plans for a brick church for the Catholic congregation to be built here. The structure will be 60' x 100', of hollow and press brick, and will cost \$20,000.

ALTERATIONS AND ADDITIONS.

New York, N. Y. — W. Thirty-ninth St., No. 40, one-story rear bk. extension, 25' x 32' 7", rearrange first story walls, new skylight and elevator to four-story bk. stores and tenement; \$15,000; o. Elizabeth Lorillard, New Rochelle; a. Neville & Bagge, 217 W. 125th St.

Broadway, w. s. 112' n. Jamaica Ave., extend rear wall; \$12,000; o. R. Lattiga, 2060 Broadway; a. A. S. Hedman, 371 Fulton St.

BUILDING INTELLIGENCE.

(Alterations and Additions Continued.)

McKibbin St., n. s. 150' w. Graham Ave., build fire-escapes on schools, etc.; \$3,000; o. City of N. Y.; a. A. W. Ross, 131 Livingston St.

E. Sixty-ninth St., No. 36, three-story rear bk. extension, 13' x 16' 9", and rearrange entire front, rear walls, to four-story bk. dwell.; \$36,000; o. Mary D. and Elizabeth S. Van Winkle, 11 E. 45th St.; a. Jardine, Kent & Jardine, 1262 Broadway.

E. Forty-second St., No. 1, five-story rear bk. extension, 22' 6" x 39', rearrange front walls, elevator shaft and vent shaft, to five-story bk. stores & offices; \$20,000; o. Margaret P. Schley, 628 Fifth Ave.; a. Smith, Westervelt & Austin, 7 Wall St.; b. Wm. Young, 125 E. 23d St.

CHURCHES.

New York, N. Y. — Sackett St., n. e. cor. Hoyt St., one-story & base. bk. church, 134' x 200', slate roof, steam heat; \$175,000; o. Rev. J. S. Duffy, 417 Sackett St.; a. T. F. Houghton, 213 Montague St.

Humboldt St., s. w. cor. Driggs Ave., bk. church, 72' 2" x 132' 4", slate roof, steam heat; \$100,000; o. Right Rev. C. E. McDonnell, Greene & Clemont Aves.; a. Brielmayer & Sons, Milwaukee, Wis.

FACTORIES.

New York, N. Y. — East Bay Ave., s. s. bet. Cabot & Dupont Sts., two & one-story bk. factory, 20' 6" x 37' & 16' x 37', peak tar & gravel roof; \$8,500; o. Rock Plaster Co. of N. Y. & N. J., 11 Broadway; a. Frederick A. Goetze, 606 W. 113th St.

LIBRARIES.

New York, N. Y. — Marcy Ave., s. e. cor. Division Ave., two-story bk. library, 69' x 80', copper roof, steam heat; \$104,840; o. D. A. Bood, chairman, 26 Brevoort Pl.; a. Walker & Morris, 24 E. 23d St., N. Y.

Pierrepont St., s. s. 200' e. Clinton St., one-story bk. public library, 50' x 100', steam heat; \$20,000; o. Brooklyn Public Library, Montague St.; a. W. B. Tubby & Bro., 81 Fulton St., N. Y.

STABLES.

New York, N. Y. — W. Sixteenth St., Nos. 335-341, five-story bk. & st. stable, 87' x 100', tar & gravel roof; \$100,000; o. Samuel Green and Daniel Richman, 57 Maiden Lane; a. L. A. Goldstone, 110 W. 34th St.

STORES.

Somerville, Mass. — Broadway, No. 328, three-story bk. building for stores, offices & photograph gallery, 33' x 60', tar & gravel roof, hot water heat; \$10,000; o. J. W. Howard; a. A. S. M. Estes, Newtonville; b. Robt. Bennett, 9 Bennett St., Medford.

TENEMENT-HOUSES.

New York, N. Y. — Avenue B, No. 6, six-story & cellar bk. & st. tenement, 25' x 67'; \$26,550; o. Amelia Newmark, 348 E. 116th St.; a. Geo. Pelham, 503 Fifth Ave.

Grand St., s. e. cor. Attorney St., six-story bk. tenement, 50' x 90'; \$55,000; o. L. Lippman, 70 Elm St.; a. Bernstein & Bernstein, 72 Trinity Pl.

One Hundred and Thirty-ninth St., n. s. 100' e. Lenox Ave., six-story bk. & st. tenement, 50' x 86' 11"; \$100,000; o. Hyman Kantor, 24 E. 99th St.; a. Lorenz F. J. Weiser, 103 E. 125th St.

MISCELLANEOUS.

Worcester, Mass. — Main St., Nos. 179-183, four-story bk. building, 36' x 59', tar & gravel roof; \$8,500; o. R. C. Taylor; b. S. I. Howard.

PROPOSALS.

SCHOOL.

[At Boston, Mass.]

The School-house Commissioners of Boston invite proposals for erecting grammar school-house, Mather District, Meeting-house Hill. Only proposals obtained at the office of the Commissioners, 120 Boylston St., signed by the bidder and left before Friday, September 18, 1903, at said office, with a certified check for \$3,900, payable to the city if the proposal is not carried out, will then and there be publicly opened and read. Cram, Goodhue & Ferguson, architects, 53 State St., Boston. R. CLIPSTON STUKGIS, FRED. ERIC O. NORTH, JOSEPH J. CORBETT, Commissioners. 1446

BUILDINGS.

[At Washington, D. C.]

Board of Commissioners, U. S. Soldiers' Home, Office of Constructing Officer, Washington, D. C., September 5, 1903. Sealed proposals will be received at this office until 2 o'clock P. M. on the 5th of October, 1903, and then opened for the construction of an administration building and of an addition to the Barnes Hospital at the U. S. Soldiers' Home, Washington, D. C., in accordance with the drawings and specifications, copies of which may be had at the office of the architect, W. M. Poindexter, 806 Seventeenth St., Washington, D. C., in the discretion of the undersigned. Separate proposals will be received for plumbing and gas-fitting, electric-light work and elevator. CHAUNCEY B. BAKER, Captain and Q. M. U. S. A. Constructing Officer, Room 320, War Department. 1445

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PROPOSALS.

BUILDING.

[At Watervliet, N. Y.]
The Park Commissioners of Boston invite proposals for erecting a brick building at Wood Island Park, East Boston. Only proposals obtained at the engineer's office, Pine Bank, Olmsted Park, Jamaica Plain, signed by bidder and left before September 18, 1903, at the office of the commissioners, 64 Pemberton Sq., Boston, with a certified check for \$200, payable and to be the property of the city if the proposal is not carried out, will then and there be publicly opened and read. **CHARLES E. STRATTON, LABAN PRATT, JAMES M. PRENDERGAST, Commissioners.** 1446

CONCRETE SIDEWALK.

[At Watervliet, N. Y.]
Sealed proposals will be received here until September 21, 1903, for constructing concrete sidewalk about 1,645 feet long and 11 feet wide at Arsenal. Information furnished on application to **MAJOR D. M. TAYLOR, Comdg.** 1447

LIBRARY STACK WORK.

[At New York, N. Y.]
Sealed bids will be received by the Park Board at the office of the Department of Parks until Thursday, October 8, 1903, Borough of Manhattan. Contract No. 4. For work and materials for erection and completion of the library stack work in the New York Public Library, Astor, Lenox and Tilden Foundations, 5th Ave., 40th and 42d Sts. Blank forms may be obtained and plans may be seen at the office of the Department of Parks, the Arsenal, Central Park, and also at the office of the architects, Carrero & Hastings, No. 28 E. 41st St. For full particulars see City Record. **WILLIAM R. WILCOX, JOHN E. FUSTIS, RICHARD YOUNG.** 1449

Treasury Department, Office of the Supervising Architect, Washington, D. C., August 31, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 7th day of October, 1903, and then opened, for the installation of a conduit and electric wiring system for the U. S. Custom-house and Post-office at Newport News, Virginia, in accordance with the drawings and specification, copies of which may be obtained at this office, or at the office of the Superintendent of Construction at Newport News, Va., at the discretion of the Supervising Architect. **JAMES KNOX TAYLOR, Supervising Architect.** 1446

Treasury Department, Office of the Supervising Architect, Washington, D. C., August 26, 1903. Sealed proposals will be received at this office until 2 o'clock P. M. on the 5th day of October, 1903, and then opened, for the installation of a conduit and electric wiring system for the U. S. Post-office at Butte, Montana, 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 Butte, Montana, at the discretion of the Supervising Architect. **JAMES KNOX TAYLOR, Supervising Architect.** 1446

Treasury Department, Office of the Supervising Architect, Washington, D. C., August 26, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 6th day of October, 1903, and then opened, for the installation of a conduit and electric wiring system for the U. S. Post-office at Norfolk, Nebraska, 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 Norfolk, Nebraska, at the discretion of the Supervising Architect. **JAMES KNOX TAYLOR, Supervising Architect.** 1446

PROPOSALS.

PUMP STATION.

[At Kansas City, Mo.]
Sealed bids will be received by the Board of Public Works, at the office of said Board, in City-hall, Kansas City, Mo., until 2 o'clock P. M., Thursday, September 17, 1903, for the furnishing of all material and labor necessary for the erection and completion of a fireproof boiler and pump house for the Turkey Creek Pumping Station, Kansas City, Mo. Plans, details and specifications can be seen at the office of the Superintendent of the Water Department at the City-hall. **ROBERT E. KING, Secretary Board of Public Works.** 1446

Treasury Department, Office of the Supervising Architect, Washington, D. C., September 1st, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 7th day of October, 1903, and then opened, for the installation of an electric wiring system for the extension of the U. S. Post-office, etc., Scranton, Pa., 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 Scranton, Pennsylvania, at the discretion of the Supervising Architect. **JAMES KNOX TAYLOR, Supervising Architect.** 1446

Treasury Department, Office of the Supervising Architect, Washington, D. C., August 20, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 23d day of September, 1903, and then opened, for the installation of a conduit and electric wiring system for the U. S. Post-office at Joplin, Mo., 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 Joplin, Mo., at the discretion of the Supervising Architect. **JAMES KNOX TAYLOR, Supervising Architect.** 1446

PUBLIC LIBRARY.

[At Cleveland, O.]
Sealed proposals will be received at the office of the Secretary of the Public Library Board of the city of Cleveland, Public Library Building, Wood St., Cleveland, O., until September 14, 1903, for furnishing all the material and doing all the work necessary to complete a public library building near the intersection of Willson Ave. and Broadway, in accordance with plans and specifications being prepared by Charles Morris, architect. Said plans are on file at the office of the said Charles Morris, architect, 625 Garfield Building. **C. D. WILLIAMS, President. HARRY DIXON, Secretary.** 1446

PROPOSALS.

Treasury Department, Office of the Supervising Architect, Washington, D. C., August 29, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 30th day of September, 1903, and then opened, for the installation of two electric passenger elevators in the U. S. Appraiser's Warehouse, New York N. Y., in accordance with the drawings and specification, copies of which may be obtained at this office at the discretion of the Supervising Architect. **JAMES KNOX TAYLOR, Supervising Architect.** 1446

BRIDGE.

[At Canton, N. Y.]
Sealed proposals will be received by the Town Board at the office of the Town Clerk in the Town-hall, in the village of Canton, N. Y., until Saturday, September 26, 1903, for the construction of a stone arch bridge across Grasse River, on Main St., in the town of Canton, N. Y. Plans and specifications may be seen at the office of the Town Clerk on and after August 27, 1903. **F. J. WHEELER, Town Clerk.** 1447

BUILDINGS.

[At New Orleans, La.]
Sealed proposals will be received by the Board of Commissioners of the Port of New Orleans at their office, No. 337 Carondelet St., New Orleans, until September 15, 1903, for the construction of the Celeste Street Steel Shed. Plans, specifications, proposal forms, etc., are on file at the office of the engineers, Coleman, Malochée & Villere, No. 1109 Hennen Building, New Orleans. **HUGH McCLOSKEY, President.** 1446

SCHOOL-BUILDING.

[At Lehigh, Ia.]
Sealed proposals will be received by the School Board of the Independent School District of Lehigh, Ia., to be sent to J. C. Retallick, President of the Board, Lehigh, Ia., until September 26, 1903, for the erection and completion of a school-building at Lehigh, Ia., in accordance with plans and specifications which will be on file on and after August 26, 1903, at J. C. Retallick's office in Lehigh, Ia., and at the office of Murphy & Ralston, Architects, Waterloo, Ia. Sealed proposals will be received at the same time and under the same conditions for the construction and installation of a hot air heating plant and also for all necessary plumbing for such proposed school-buildings as per specifications. **J. C. RETALLICK, President. N. J. WILLIAMS.** 1447



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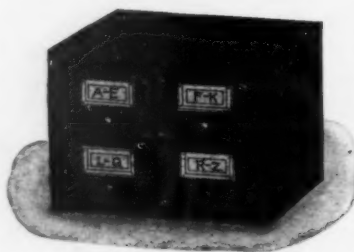
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. . . CODE OF ETHICS . . .

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Best Standards of Practice, and
Recommended to its Members by
the Boston Society of Architects,
was . . .

ADOPTED BY THE SOCIETY, FEBRUARY 1
.. 1895. . .

SECTION 1. No Member should enter into
partnership, in any form or degree, with any
builder, contractor, or manufacturer.

SECTION 2. A Member having any ownership
in any building material, device or invention,
proposed to be used on work for which he is
architect, should inform his employer of the
fact of such ownership.

SECTION 3. No Member should be a party to
a building contract except as "owner."

SECTION 4. No Member should guarantee an
estimate or contract by personal bond.

SECTION 5. It is unprofessional to offer draw-
ings or other services "on approval" and
without adequate pecuniary compensation.

SECTION 6. It is unprofessional to advertise in
any other way than by a notice giving name,
address, profession, and office hours, and
special branch (if such) of practice.

SECTION 7. It is unprofessional to make altera-
tions of a building designed by another archi-
tect, within ten years of its completion,
without ascertaining that the owner refuses
to employ the original designer, or, in event
of the property having changed hands, with-
out due notice to the said designer.

SECTION 8. It is unprofessional to attempt
to supplant an architect after definite steps
have been taken toward his employment.

SECTION 9. It is unprofessional for a Member
to criticise in the public prints the professional
conduct or work of another architect except
over his own name or under the authority of
a professional journal.

SECTION 10. It is unprofessional to furnish de-
signs in competition for private work or for
public work, unless for proper compensation,
and unless a competent professional adviser
is employed to draw up the "conditions" and
assist in the award.

SECTION 11. No Member should submit draw-
ings except as an original contributor in any
duly instituted competition, or attempt to
secure any work for which such a competition
remains undecided.

SECTION 12. The American Institute of Archi-
tects' "schedule of charges" represents mini-
mum rates for full, faithful and competent
service. It is the duty of every architect to
charge higher rates whenever the demand for
his services will justify the increase, rather
than to accept work to which he cannot give
proper personal attention.

SECTION 13. No Member shall compete in
amount of commission, or offer to work for
less than another, in order to secure the work.

SECTION 14. It is unprofessional to enter into
competition with or to consult with an archi-
tect who has been dishonorably expelled from
the "Institute" or "Society."

SECTION 15. The assumption of the title of
"Architect" should be held to mean that the
bearer has the professional knowledge and
natural ability needed for the proper invention,
illustration and supervision of all building
operations which he may undertake.

SECTION 16. A Member should so conduct his
practice as to forward the cause of profes-
sional education and render all possible help
to juniors, draughtsmen and students.

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