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THE New York Mail and Express raises a question which is by no means new. Speaking of a recent competition for a public building, where the competitors were notified that the cost was fixed by law at a certain sum, and the result of which was the award of the commission to a certain competitor, whose design, as it appeared, could not be carried out within about fifty per cent of the specified limit of cost, it asks whether the other competitors and the public have not a right to insist that the contract with and between the competing architects, constituted by the printed terms of competition, shall be enforced, and competitors excluded from the award whose designs cannot be carried out for a sum at least reasonably near the prescribed limit of cost. It is hardly necessary to say that this subject has been discussed in the profession for many years, and the time for an authoritative decision on it is, perhaps, near. There was a period, not so very many years ago, when many of the most successful architects notoriously paid no attention to the limit of cost set down in competition programmes, knowing that if they could get the votes of the jury for their magnificent design, the money to carry it out would be found somehow. It was at this time that, although the terms of a competition for a public building of note stipulated that the cost of execution should not exceed five hundred thousand dollars, the officials in charge proceeded to spend four millions on it; and many cases, only less flagrant, confirmed the view expressed to us by a winner of many competitions, that the main thing was to get an attractive design, leaving the rest to luck. After a time, this condition of affairs attracted unfavorable attention, and competition juries became much more strict in the matter of cost, even throwing out charming designs now and then, for the reason that they could not be carried out for the specified price; but the current seems to have changed of late years, to the manifest injury of conscientious and responsible architects, who see their plans, carefully worked out and still more carefully estimated, thrown aside in favor of a gorgeous pencil elevation, daubed with color, the author of which knew little, and cared less, about the probable cost of carrying it into execution. Undoubtedly, as a matter of law, a stipulation in a competition programme that the cost of the building shall not exceed a certain limit constitutes a valid contract between those who propose the competition and all who submit competing drawings, and an acceptance, or award in favor, of a design which will cost materially more than the stipulated sum to carry into execution is a violation of this contract, giving to the other competitors a claim for damages. Many such claims have, in fact, been made, but they are usually met with the reply that the design of the claimant would not have received an award in any case, and that he has therefore suffered no injury. This plea generally seems to a jury unanswerable, and it is much to be desired that a different course of procedure might be adopted. Perhaps, if all the competing architects were to claim the value of their services in preparing their designs, they might obtain justice,

as the answer could hardly be made that none of them would have received an award if the competition had been fairly judged; but intelligent legal advice would be desirable on this question, which might with advantage occupy the attention of the American Institute of Architects.

AN extraordinary decision, or rather, we hope, an extraordinary report of a decision, appears in the New York papers in connection with the case of Wright vs. Eisle. In this case the plaintiff, an architect, built a house for a client, filing, as the law requires, a set of the plans with the Building Department. The defendant saw the new house, and liked it, and asked the architect what his price would be for a duplicate set of drawings. The architect's demand was, as the defendant thought, "excessive," and he therefore employed another architect to go to the Building Department and make copies of the drawings from the files. The defendant having by this means secured a reproduction of the house which he fancied, at a very reasonable price, the original architect thought that he deserved something for his part in the result, and sued for infringement of his rights as the author of the design. Any prudent lawyer should have told him that, unless his design was copyrighted, he had no claim to the exclusive control of it, but the court, in giving judgment against him, went much farther, saying, according to the newspapers, that even the author of a book has the right only to say where and by whom it shall be first published; and that, after its publication, it is dedicated to the public, and he has, at common law, no right to prevent other people from copying it; and that, so far as an architect is concerned, all property rights in his drawings, if they have any value, belong, after publication, to the owner of the building executed from them.

OUR readers will remember that suit was brought, some months ago, against the Trustees of the Pennsylvania Academy of the Fine Arts, for having sold a picture bequeathed to them. The picture was bequeathed by the late John Henry Towne, together with the sum of five thousand dollars, with the stipulation and, according to the newspapers, on the condition, that it should be hung in a good light and marked in a specified manner. The Trustees recently sold the picture for a very small sum, but kept the five thousand dollars which went with it, and Mr. Henry R. Towne, as executor of the will under which the bequest was made, brought suit for that sum, in behalf of the University of Pennsylvania, the residuary legatee. The court, however, decided that the executor could not compel the Trustees to repurchase the picture, nor could damages be collected from them for its sale, for the reason that the funds of the Academy could be used only for charitable purposes, and paying damages was not a charitable purpose. It is probable that the newspaper reports are a little confused in their statement of the decision, for it is hardly conceivable that a charitable institution should be legally exempt from paying damages to those whom it may have injured; but it appears to be settled that, in Pennsylvania, trustees may do as they like with property bequeathed them, without danger of being called to account for their disposition of it.

THE November Bulletin of the United States Bureau of Labor contains an interesting study of Labor Conditions in New Zealand, by Dr. Victor S. Clark. New Zealand has been so often held up to us, by Lloyd and others, as a sort of social paradise, that an impartial study of the country by some one without theories to sustain is of peculiar value. As our readers know, the present system of legislation in New Zealand favors workmen and small proprietors, at the expense of richer people, to an unusual extent. While owners of land valued at less than twenty-five hundred dollars pay no taxes, the unfortunate holders of large estates pay one and one-quarter per cent a year on the valuation of their estates, besides an income tax of five per cent. Workmen who own no land receive their slice of legislative bounty by having innocent persons held responsible for their wages through lien laws, while compensation for accidents is provided, and people who have hard work to support those dependent upon them are obliged to contribute toward "old age pensions" for workmen. Moreover, as every one knows, strikes and lockouts are

abolished by means of the compulsory conciliation and arbitration laws, and the "living wage" principle flourishes luxuriantly, minimum rates of wages being fixed in many industries. It is curious to compare this theoretical bliss with the statistics. In the year 1900, when the system had been, in substance, nearly ten years in force, the average annual earnings of all operatives in all manufacturing industries in Ohio were twenty-four per cent higher than those of New Zealand operatives, while the average cost of workmen's board in Ohio, according to the report of the State bureau of labor statistics, was thirty per cent less than in New Zealand. In other words, while an operative in New Zealand was earning a dollar, of which he had to pay the whole for board of himself and his family, an Ohio operative earned a dollar and twenty-four cents, of which he only had to pay seventy cents for board of himself and his family, leaving him fifty-four cents for other purposes, while his brother in New Zealand had nothing. Yet the last ten years, as we are told, have been prosperous ones for New Zealand. Dr. Clark observes that New Zealand factories work from one hour to one and one-half hours less per day than American factories, and this circumstance probably explains, to some extent, the difference in condition between the operatives in them. Mr. Atkinson tells us that if an eight-hour working-day should become universal, the people of the world would soon starve to death, and it is certainly significant that the Ohio operative, by working an hour or an hour and a half longer every day than his New Zealand brother, is able to save up, or spend for other purposes, forty-four per cent of his wages, where the New Zealander has nothing left after paying his board. In regard to the moral effect of the New Zealand system upon the people who are supposed to profit by it, Dr. Clark makes some interesting observations. He says that he finds "vastly less individualism, and, even in times of prosperity, more real or affected pessimism than among our own industrial classes." The inevitable consequence of fixing minimum wages by law is to reduce the income of all men in a given class, whatever their ability, to the legal minimum, and Dr. Clark found that in the city of Wellington, the second in the colony, out of three hundred and seventy-two carpenters employed in the city at the time the last "award" was given in that trade, "only nine were receiving more than the minimum wage of thirty-three cents an hour established by the court." Moreover, we are told, "It is doubtful if a workman is normally more assured of employment in New Zealand, even with his comparative security from idleness through strikes, than in America"; while "the practical effect of the minimum wage awards in the organized trades in New Zealand has made it as hard for the man sinking below the line of average efficiency to get employment as in America." It is not surprising that this system should have developed what Dr. Clark calls a "voluntary acceptance of status by all classes of people"; that is, the gradual drift into a system of caste which is slowly, but surely, preparing the way for the hopeless slavery which lies at the end of all socialistic tampering with the freedom of the individual.

DR. CLARK gives some figures of the public debt of New Zealand which will attract the attention of financiers. It has long been vaguely known that the Australasian colonies were loaded with frightful debts, but without exact details. It appears, however, that the net debt of the colony of New Zealand on the thirty-first of March, 1902, amounted to three hundred and nineteen dollars and thirty-two cents per head of the population. The same rate applied to this country would give a debt of twenty-four thousand million dollars. It is true that a large part of the debt of New Zealand represents investments in railways and other "public utilities" from which income is derived; but, even with this assistance about one-third of the public revenue is absorbed by debt charges.

M. LÉON BENOUVILLE, who died recently in Paris, at the age of forty-three, was a remarkable example of the versatility and artistic instinct which are so common among the French. Although already an architect of great distinction, an expert in mediæval art, as well as Vice-President of the Society of Artist-Decorators, Diocesan Architect of Lyons, and an honored member of most of the professional societies, he was educated as an engineer, graduating ninth in his class at the École Centrale, with the diploma of Engineer of Arts and Manufactures. It is not impossible that his scientific education inclined him to the study of that wonderful

system of practical statics, the mediæval construction, for immediately after his graduation, he devoted himself to this, with such success that he won, in a brilliant competition, an appointment in the service of the "Monuments Historiques," in which he was soon promoted to the most distinguished position. He carried out also many buildings in private practice, among them being several large country-houses of great interest; and made, for his own amusement, studies of decoration which were exhibited, and attracted so much attention that he soon became an acknowledged authority on the subject. In addition to these artistic labors he interested himself deeply in the question of cheap and wholesome dwellings for the poor, and was an important contributor to the success of the Dwelling-house Exhibition, now open in Paris.

THE Boston *Transcript* has a letter from some one who is offended by the posters which deface the Elevated Railway stations, and replies to it very sensibly, saying that the company, as controlling its stations, even though they are built on public land and are intended for public use, has a right to allow posters to be placed in them, so long as the posters do not offend persons of normal sensibility, but that the State, by its police power, may interfere to prevent shocking and distressing people who are not abnormally nervous, through posters of glaring ugliness or vulgarity. The *Transcript* adds a suggestion which advertisers will do well to bear in mind, that beautiful and artistic posters are far more effective in attracting business than vulgar, ill-drawn, staring ones. The least sensitive person resents being addressed with clownish familiarity by a stranger; and a coarse and vulgar appeal to the eyes offends the self-respect of those who see it in the same way, while a beautiful advertisement leaves a permanent impression of gratitude and pleasure. It would be interesting to inquire how many of the late Henry L. Pierce's millions he owed to the picture of the pretty girl, with a cup of Baker's chocolate, which is so familiar to our eyes, or how many thousands each picture of a Mellin's Food baby in the popular magazines brings in. The extraordinary success of the Suchard chocolate in Europe is generally attributed to the skill with which it is advertised, and the advertisements employed by the manufacturer consist mainly in beautiful posters, not distributed very lavishly, but made so charming that people who catch a glimpse of them turn back to see more of them. Naturally, this fixes the subject of them in their minds, and the main object of the advertiser, to have his wares remembered with satisfaction, is attained.

A NEW method is being used in the construction of the eastern portion of the submarine tunnel across the Harlem River. The western portion, which is already finished, was built by driving sheet-piling on each side of the line of the tunnel, cutting the piles off level, and laying on them a watertight platform of timbers, so that the water could be pumped out of this preliminary enclosure, pneumatic pressure applied, and the tunnel proper built inside of it. This method has obvious advantages, in that the timber enclosure, which is filled with compressed air, presents a perfectly definite resistance, so that there is no danger that the air will unexpectedly escape, as so often happens with compressed air in an excavation in sand or silt; while, as the timber walls and roof may, if the sheet-piles are long enough, be at any height above the bottom of the stream, it is not necessary to carry the tunnel to a depth not otherwise required, in order to have a sufficient mass of material over it to resist the pressure of the compressed air. In the eastern half of the tunnel an improvement over this method is proposed, consisting in the elimination of the wooden platform forming the temporary roof of the enclosure, and the substitution for it of the permanent roof of the tunnel, which, when the sheet-piles are driven and cut off, is floated over them on pontoons and sunk into position, the permanent walls and floor being subsequently built up under it. There would seem, at first sight, to be some difficulty in making an air-tight joint between the sheet-piling and the iron or masonry roof of the tunnel, as well as in building the permanent walls inside of the sheet-piling in such a way as to make a second air-tight joint with the roof; but the contractor, Mr. McBean, to whom both these ingenious methods are due, has undoubtedly studied these details. In any case, his invention will materially reduce the cost of submarine tunnelling for the future, and by the opportunity which it affords for setting the tunnel, if necessary, above the actual bottom of the stream, it will enable engineers to arrange easy grades for submarine roads under deep channels.

A COMPARISON OF ENGLISH AND AMERICAN METHODS IN THE ERECTION OF BUILDINGS.¹—I.

WE have met together this evening to consider, in comparison with our own, the methods adopted by our cousins across the water in the erection of buildings, and to gather therefrom anything useful to ourselves. I am not dealing closely with the constructional designing of buildings, although that has considerable bearing upon our subject, but with the methods adopted by the erectors of the work. In any references to "English" or "American," it must, please, be distinctly borne in mind they are not personal, but are solely made in general terms of either as a nation. As in architecture or in sculpture, when we refer to the beauties and skill of the ancient Greeks, we do not imply there were no instances of bad art produced by them in the same era, so, when speaking of the pushfulness of the American, it is not to infer it a universal possession, or, on the other hand, to imply that all Englishmen lack great energy, which would be ridiculous. I speak of each only as a body—as a nation.

It is a healthy exercise, and if the advent of Americans into our local business enterprises universally results in this, their coming is not to be regretted. But in the press, or elsewhere, only one superiority in building matters has been claimed by or for the Americans—the claim of speed. In the most picturesque of the press comments no claim has been put forth for better work, better finish, less settlement of walls, less cost, or any other advantage over the English contractor than the one of acceleration of speed in the erection of the work. It is an important claim, however. Is it a just one? In my opinion it is, only qualified by the remark that, all other things being equal, it has been an exaggerated claim.

What are the methods adopted by the Americans which are not in general vogue with English contractors, whereby this acceleration is obtained? Several factors are necessary, and in a parenthesis it may be added that there are many Englishmen possessing every one of them, who have worked with them in full play, achieving much, although, like Englishmen, they have done so quietly, quite oblivious of the fact that they were doing anything deserving special comment or in any way out of an ordinary quick, bright business life. But my point is this, that these speeding-up qualifications are not as widespread amongst us as with the Americans. Again cautioning you I am only referring generally, and not individually, let me come at once to the "practical politics" and give you a summary of these factors of successful rate and progress. The American is:—

First.—More keen upon his work than we are. Of him it cannot be said, as of some Englishmen, that his business occupies his spare time. It is more true of him than of us that business comes first and pleasure afterwards.

Secondly.—The American architect is more generally alive to rapid completion of the drawings and details of the approved scheme, in order to enable the contractor to know at the start virtually the whole of what he has to do. He also, if the work is such that it can be introduced, schemes his construction in such a manner that quick speed is attainable. Coupling-up steel stanchions tends to more rapid progress than endeavoring to provide polished granite from a Scotch quarry in winter.

Thirdly.—Based on being provided with the drawings, the contractor is enabled to perfectly organize his work. Every contractor here will know the extreme benefit and help this is to him, and would appreciate always being provided with early full settled information, clear and definite.

Fourthly.—This is one of the principal factors, if, indeed, it be not the principal one. Why should American architects work early and late, employing wider assistance to enable them rapidly to complete their drawings and instructions? Why should the American contractor spend much more on superintendence, on labor, on overtime, on earlier delivery of material? They do it because the American proprietor, more fully appreciative of the fact that the rapid building of his works means money to him, is willing to pay the necessary additional expenses such services involve. It is a pecuniary advantage to him, and he does not hesitate to pay in order to gain it. By his paying for it, the costs of the acceleration are met, and the incentive provided for the greater exertion on every one's part.

Fifthly.—The American values more the power of work in his employees than the amount of the minimum wage, and to save time will more eagerly seek the latest hoisting and other machinery. The attitude of the workman is also in his favor. An American workman seems to recognize that the more cheaply an article can be produced through economizing labor, the more the trade as a whole will be benefited, and, as a natural result, the laboring classes must be also. I have seen the matter expressed thus: "We know we are the gainers in the end if a new machine is introduced which does the work of ten men by the help of one. American employers always pay better wages to the men employed on their labor-saving machinery, and this has a tendency to advance wages all round, and find more and more employment."

On the other hand, it seems to be the deliberate suicidal policy of some trades unions in our country to compel their members to do as little work as will pass muster. This is a hard saying, but letters to

this effect to the *Times* failed in getting any denial from the union leaders. I should like to know this was a mistaken impression. It does not obtain, however, so much in the provinces at the present time as it did five years ago.

In this summary you have the whole matter. It is application and devotion to work, with profit as the incentive and reward. Let us deal with these factors in greater detail, and not be too conservative, too splendidly isolated, too sensitive, to benefit from them. An American is keenly alive to the necessity of work, thought, application in his business. The American air seems to exert upon him a stimulation to new exertions and fresh enterprise. Add to this the great incentive of self-interest in the object to be attained, and you have the most potent of causes working in him. These direct him to the provision of everything to save time. Anything tending to this direction is worthy his consideration.

He commences his business education early. The system of education of the youth of America is founded more with the object of the ultimate business life than is ours. It is of more importance with him to know the history and to study the causes of American industrial progress than to be imbued with the knowledge of a dead language. The American university takes more the direction of a technical institute than it resembles our ideas of higher education. A youth is expected and directed to go through this course, which is a considerable portion of his actual business training. He is in his early manhood being properly fitted for his career, and his interest is thus bent towards his business pursuit. He has every opportunity for being trained in the right direction. Technical education implies in teaching some concern for the practical prospects of those taught. Practical experience goes with the theoretical. An American, by a common-sense education, does not enter upon his trade with a suspicion he is demeaning himself. Hopeful enterprise is the spirit in which he begins; he believes in the thing he has to do, and is proud of it. Can this be said to be the general drift of our higher educational systems at present?

It must be remembered America is a huge new country, and for a century there have necessarily been continually new developments, widening industries to meet the needs of an increasing population still further enlarged by constant immigration, and consequent urgent demands in ordinary times for labor and material of every kind in building operations. These young industries were fostered by protection. The price of the nation's manufactures and the wages of the people continually increased. The cost of home productions being thus generally enhanced, the absolute necessity arose for the seeking and adoption of every feasible method for the reduction of that cost if trade were to be increased at home, and still more if there were to be any weighty business in exporting manufactured articles to a country where free trade at any rate kept down their cost. Necessity was again the mother of invention. The natural outcome with an energetic people was the introduction of labor-saving machinery. For this competition labor-saving machinery was not the only thing needed, but improvement in the manufactured article where such could be obtained. The necessity found the incentive and motif, without which nothing important will be done. Similar results follow here where necessity has driven home the incentive. For the moment, some of our trades have been overtaken, but in many all efforts have been in vain to exceed the excellence of our manufactures. Great Britain is still easily first in certain textiles and textile machinery. No other country can approach the productions of Lancashire and Yorkshire. Recent indiscriminate eulogies of almost everything foreign compared with our own work and methods have given a very erroneous impression. It has become the fashion to so depreciate ourselves that people are beginning to believe it. An American, on the other hand, makes a point of praising his own country on every possible opportunity. We seem almost eager to belittle the industrial efforts of our island. We are unjust to ourselves. Our carpets, our cotton, our cloth, the precision of our machinery, our ship-building, our pottery, cutlery, are still unbeaten. Abroad our goods hold their own in quality and finish, although in some directions there is certainly great need for new ideas and improvements of design. When staying at one of the New York largest modern hotels, I was much struck with the beautiful finish of the bath and lavatory appointments and general plumbing-work. Being naturally desirous of gathering information wherever possible, I asked for the name and address of the firm who did the work, intending while in America to visit their establishment to see their goods. The whole hotel, it turned out, had been fitted up by a London firm. If this had been reversed, every newspaper in England would probably have contained an article upon American enterprise, with braggadocio accounts, possibly paid for, about the decadence of the sleepy English sanitary engineer before the young American invader. Gentlemen, in matters of self-advertising we are as babes in the Wood compared with our cousins. This system of pushfulness, at all events, is totally opposed alike to the sentiment of Englishmen and of the better class of Americans.

I have named incentive as the lever for real progress. It has not been very strong with us. The supremacy of our old country for many years in manufactures, industries, wealth, seems to have induced in us the habit of thought that we were by nature and a good providence the only possible first, that our very success indicated there could hardly be room for improvement, that what was good enough for our fathers, and made their fortunes, was good enough for us, who were doing very well, and there was no apparent need for

¹A paper on "English and American Methods of Building," read by Mr. Charles Heathcote, F.R.I.B.A., of Manchester, Eng., before the Institute of Builders, and printed in *The Builder*.

strenuous endeavors for other methods, increased knowledge, new markets; but for those wishing to compete with us, and to effectively attack our position, an opposite state of things obtained. Their necessity, circumstances and environment have called forth increase of energy and application, while we have been in many ways generally content to remain as of old, having formed our habit of believing we were unassailable as the workshop of the world. But this is quickly changing. The working force does not appear to be a matter of race at all. A Britisher going to the States soon adopts the quicker actions of the country, and overcomes the conservatism of his old ways. The best brickwork, for instance, in New York, has been done by English bricklayers.

There is no one definite reason that can be given for this quickening of activity. The work is done under a different organization, and follows methods of economizing human labor. These combined, when acting in conjunction with exactly similar machinery to ours, produce a greater result. And the workman himself recognizes this.

Americans have many methods ahead of ours, in others they have as much to learn from us as to teach. There is this great difference, as I have been endeavoring to show, the greater desire to learn, and to take advantage of what they see to effect improvements in their work and methods. They are, in a word, more keen to find out and adopt good new ideas, for the solid, sensible reason that it is to their all-round advantage to do so. And if you find on one side a young man imbued with this spirit in his business, and on the other one who does his work as drudgery, with an eye to leaving it behind at the first moment, which is likely to gain the business, other things being equal? Excessive railway and canal charges may have been in our island largely responsible for decline in some trades, but there have been causes of deeper significance. Have the sons and successors of the founders of our industries generally been actuated by such genius, pluck and untiring energy as their fathers? The inducement was not there for the same old strenuous life.

We are a very conservative people. A great statesman lately referred to our pedantry and self-conceit of former years with regard to foreign politics. The same faults have been with us in some branches of business. The Prince of Wales, a great thinker, gave his advice to the nation to "wake up" out of this position. We are doing this, and we have made an excellent start toward "speeding up" by owning to ourselves that it is really possible we can be beaten.

There are many events of the past few years that have borne upon us relentlessly that we have not been doing our best, that we have not acted up to our capacity, that we have been too self-satisfied. I need not refer to them in detail, but we know them. Some have come upon us from South Africa with the sharp sudden pain of a blow to our self-conceit, some have hit our self-complacency nearer home. Nothing less would seem to have had real power to move us. We are waking up. If we of the building community will but carry forward this resuscitating process and speed up in our work, we shall be acting wisely. We have everything in our favor if we will but overcome our old self-satisfied conservatism of thoughts and methods. The English quiet, self-respecting determination, coupled with greater keenness for quicker work and better organization, is all we need. It is not entirely the highest speed that is wanted, but the old good workmanship, better speed and progress, well-organized methods.

I was recently asking an Englishman, who had lived twelve years in Melbourne, his opinion of American competition there. He illustrated his answer by saying that if one heard of a good prospecting locality and went to see it, one would be sure to find either a Scotchman or Englishman there already, pegging out claims; but if one went into an ironmonger's store probably half the goods would be American, the remaining portion being English of the same pattern exactly as ten years ago, strong and durable as ever, while the American productions of the same class, not as strong and durable as the English make, but improved in style and pattern two or three times in the period. This illustration very clearly explains our respective positions.

I am, with your permission, spending some of your time upon this portion of the subject, for it forms a large part of the principle from which all springs. We are getting more alive to the necessity of speeding up our ways. Allow me to take an instance from some other trade than the building trade; take the boot and shoe trade. It illustrates the principle alluded to. Some years ago this trade was greatly assailed by American manufacturers. They had with skill and ingenuity brought labor-saving machinery to great perfection, and had considered carefully the needs of the trade, the requirements of the people, their customers. They invaded this country without let or hindrance, causing much trouble to our work-people in that industry. But our shoe manufacturers are dropping their comparatively conservative ways and adopting the latest machinery, and are, as they should do, recovering their position. If they formerly had had the incentive to be improving their methods the American trade would not have come here at all. Now they have to fight it, which they are doing, and are winning. It will be the same probably in every other industry that has been attacked, if we will only in earnestness and reality rise to the occasion. From what has fallen within my experience, I have not the slightest pessimism about our trade, our businesses, if we are only true to ourselves and our capabilities. The words "English Manufacture" are a hall-mark the

world over for excellence and finish. I have seen in the shops of America such words as "All the goods in this establishment guaranteed of English manufacture," which is another side of the shield to that usually presented to our view.

There is not the remotest claim that American buildings are better built than ours. Work rushed by flares and at night, for instance, cannot be as good as that accomplished by daylight. I am a believer also in the sober section of our working men and women, whose skill has no equal, and I very much doubt if in times of stress and difficulty, their quiet, determined courage has, either.

In some sections of industrial activity it will be very difficult to regain our former position, and it will only be accomplished by long, patient study and application. But it is not only this in many cases. I am thinking at the moment of the chemical industries. The German manufacturers are said to have succeeded in obtaining a wider grasp of this business than would have been possible if we had had the inclination and the foresight to have provided thorough training easily within reach. But our Patent Laws are answerable for a great deal of it. Every other nation but ours makes it conditional to work or license a patent if granted in their territory, but we allow a patent to be taken here without this. Although aniline dyes, for instance, were first made in England, the effect is that Germans patent their chemical improved methods in both countries, working it in their own country and stopping anybody doing it here. Surely such a law should be altered if we complain about bad trade. We are deliberately helping the foreigner in many cases against ourselves. There are scores of inventions made by Englishmen thus patented and credited to other people by the action of these Patent Laws, and among them many connected with the building trade. This is my excuse for naming them. Even the most fiscally upsetting Conservative or the most commercially repulsive Radical could not object to freeing us from such prejudices as are contained in our present Patent Laws.

There are more drones here than in the American hive. This is not very healthy if we are to retain our position. The only way to effect an improvement is to provide inducements. A young American will work and study in his business because he is assured of remunerative employment at the end of it, and the more he knows and the smarter he is the better he will be paid. That inducement does not hold good here to the same extent. If a man is a laborer he will not be allowed to lay bricks, however clever he may be at it, until he has served many years of apprenticeship. What inducement, then, has he to learn to lay bricks? Further, are our magnificent new Technical Schools filled with eager youth striving to extend their knowledge in the particular line of their calling? Many there are who industriously and commendably apply themselves to it, but there is not the eager, hearty entering-in of the great mass of the people, because the inducement is not there. Can the desire for the knowledge of building construction in the average builder's clerk be compared to his anxiety for a football-match?

The second factor mentioned was the position and work of the architect. The great body of architects are greatly interested in their calling, and are keen in their business application, with great capacity for work. They possess, among other reasons, a strong inducement for the due fulfilment of their duties in the fact of the fascination and joy in the work itself. But we have not, as a body, sufficiently risen to the fact that a month saved in the preparation of drawings and data probably means a month's interest and a month's profit to our clients. We have not, also, as a body, sufficiently educated ourselves in modern advance in those forms of construction and the use of materials leading to saving of time, with its attendant advantages. And, if we had, possibly the County Council by-laws would prevent their employment.

It is not fair to a contractor, ready with his plant, his office, his desire to please, to be hampered in his progress by want of drawings, which are his illustrated instructions, his directions. He is a wise architect who will learn that by saving time he is assisting his client and strengthening his own reputation. I am fully aware of the delicate ground I am now crossing. There are many men in my profession as much to the fore in all this as any American, but it is not the average. And in speaking of assisting the speed of execution I am as fully aware as any one that speed is not everything, that in some cases it is a distinct disadvantage in construction and stability, that there are circumstances in which it would be decidedly detrimental to the structure and adverse to the interests of one's clients, and in other cases it would be impossible to build quickly; but as a body we do not furnish the contractor as quickly as we should with the drawings if we are expecting him to exercise all he can in forwarding matters. I once knew an architect who obtained estimates for ten different designs for a dining-room dado before he could make up his mind, and I have no doubt many in this room could give some amusing anecdotes of a like character.

Further, we in England, architects and builders, do not as fully fill the ranks of superintendents of the works as we advantageously might. We can most of us learn something here from the Americans. A clerk-of-works, capable, worthy man though he be, whether formerly a joiner or of any other trade, is considered generally to be performing the whole duty of man by watching material as it arrives to see if equal to the contract requirements, by keeping data as to weather, number of men employed, etc. This, in any work above a small one, needs augmenting. By all means retain the clerk-of-works for these necessary duties, adding to them the keeping of progress plans, but in any more important work another, and

a more highly-trained assistant, or half a dozen such may be added. It is impossible to carry out a large work with expedition without the aid of plenty of superintendence. If there is much steel employed a qualified engineer is needed at the steelworks to test the materials and to personally see that the proper rolling is done, and that the beams, stanchions, and work generally, as first needed, are being put together well in time for delivery, before they are actually needed for placing in position. Capable men are needed on the building itself to supervise sections of the work, and personally see that the rate of progress is maintained, that whatever materials are needed in succession are on the spot. There must be a system of organization, and each individual supervisor must know his position in it, and undertake that his individual section lacks nothing by want of foresight. These superintendents, under the control of the architect, must look forward in their work, and convince themselves all is ordered well ahead and to be in time. Organization by a capable, practical head is needed, and the architect is the man appointed to be that head and director. On my own buildings I have progress plans, with the dates upon which certain parts of the work are expected to be completed, it being the duty of the superintendent of any one part to see that such instructions are carried out. He has a defined work to see to. In a building we have now on hand in the North, and covering some five and a half acres of land, this is done, and every part of the work mapped out. It is organization. It saves time and is methodical. It is what an American would also do. You probably do it also, but it is not universal. In one building we were doing there was a large amount of timber necessary which we bought in America, and we had an inspector in our own pay at New Orleans to inspect the timber before being put on board, in order to ensure proper material and despatch. An American would act similarly.

There is in all new buildings a certain speed of erection which forms the most lucrative rate to the contractor. If on the one hand he gets too slow the cost of erection is enhanced, and the same remark applies if he is excessive in speed. Consequently, if an architect (and the proprietor through him) asks for tenders for the execution of certain works with the intention of placing the contract with the firm submitting the lowest prices, he can, in equity, only expect that rate of speed at which the contractor makes most profit, for that is all he tendered to do and is all the proprietor is paying for. The great majority of contracts are let in this country on this understanding, for the date of completion which is named on the contract is calculated on this footing. Neither an American nor any other contractor tendering on this basis would spend his money on accelerated speed if he reaped no benefit thereby. This part of the matter resolves itself into a small compass. If a proprietor wishes a very quickly-erected building he must pay the necessitated additional outlay enabling the contractor to effect it at a reasonable profit. Herein is the germ of the whole matter, and herein comes at once the American greater keenness. We do not, or have not, fully risen to the fact in the great bulk of our contracts that if a proprietor saves £1,000 in interest on his land value by quickened construction it is a very good business to spend £750 in order to obtain it. It is, of course, no new thing to us, but we have not as fully realized it as we should. An American proprietor not only does appreciate this, but he acts on it, and will spend more than the thousand pounds actually saved in interest, because he makes money by having his works and premises as a going profit-making concern all the sooner. There are many in this country who see all this and act on it, but it is not general. Given the same rate of payment and the same conditions, an English contractor will work as quickly, as well, as thoroughly, and as satisfactorily as an American, and better in some manners and ways which we in this island prefer. I will presently give you an instance of this.

In making a contract, my sons and myself give a penalty for non-completion, with an exactly similar bonus for earlier termination. We find the result just as anticipated, and that we often have to certify for a substantial bonus. It gives us much pleasure when this occurs, for it is an extra payment due for diligent service, good business organization, and a gain to both proprietors and contractor. If, however, a very speedy work is desired, bonuses are given the sub-contractors for the acceleration.

If some imaginary buildings were worth £100,000 to erect in eighteen months, and the builder were offered £10,000 or £15,000 if completed in fifteen months, there would be a strong inducement to pay extra wages for a choice of good workmen and plenty of them, to find bonuses of 1s. 6d. per 1,000 for bricks for earlier delivery, to provide many a half-crown or five shillings to men to complete a certain thing by a given time, to pay £2,000 for early delivery of steel or stone, to put down the speediest machine, to berth additional superintendents to hustle things up. An American would take greater risks in addition, for they do not erect scaffolding like you do in London. Herein, I reiterate, lies the germ of the whole matter, the readiness of the proprietor to pay for the extra speed or advantage.

Having thus dealt with the factors making for the American methods, let us now consider whether in England we have been doing anything very similar. I can only speak of building in the North, where we are accustomed to work harder, longer hours than in the West End, shall we say? And in entering upon this phase of our subject, I can only speak with authority upon those buildings coming under the jurisdiction of my own firm.

[To be continued.]

PEAT AS AN ARTICLE OF FUEL.¹

THE general public in America have but a superficial knowledge of the character and properties of peat, beyond what they have gathered from hearsay, or the testimony of Old Country people in regard to the burning of dried turf, or sods cut from the surface of bogs and marshes. Peat, or turf, is formed by the slow decomposition or carbonization under water of a variety of accumulated vegetable materials. There are two species, one formed from aquatic grasses, the other from mosses.

The peat formed from grasses (or sedges) is dark gray in color on the surface and black below and is nearly destitute of fibres. It flourishes in limestone districts, as it needs lime for its nutriment, and grows so rapidly that mosses cannot live in the same vicinity; when dry it is hard and firm like clay.

The "sphagnum moss" is reddish-brown in color, fibrous in structure and is generally found in regions where the rocks are granite or silicious and where the surface waters are free from lime, and while the moss or sphagnum flourishes in pure water it grows upward and continually dies away beneath, thus in the course of ages forming beds sometimes 100 feet deep, the average bog, however, being from 5 to 50 feet deep, and is found in abundance in almost every portion of the United States, Alaska, Canada and the South American republics.

The deposits of Great Britain and Ireland occupy an area of 6,000,000 acres, and much more extensive beds are found in Germany, Russia, Norway, Sweden, Finland, France and other countries of Europe and Asia.

All European countries have for numberless years used peat in a crude form as fuel for domestic purposes. In Ireland and Germany its use is well nigh universal. The usual mode of preparation is to cut it out of the bog with an iron instrument called a "slane." These bricks are dried in the open air, and are then ready for use. Peat fuel in this form is too bulky to be a commercial success, hence the many and varied experiments to eliminate the moisture and reduce the crude peat mechanically to a product which would assure its use commercially in competition with coal.

Peat is the first stage in the formation of coal. Beginning with peat we pass to lignite (or brown coal), then to bituminous coal, and finally anthracite coal. In passing from the vegetable to the mineral state a large percentage of heat-bearing properties of the peat are thrown off during the transition in the shape of natural (or marsh) gas.

The tar, paraffin, light and heavy oils and other volatiles are eliminated by the load of strata over it which escape and form the natural gas-belts and petroleum-wells of this country. Peat as it goes below the surface naturally takes on the iron which changes its color from brown to black; the sulphur has a vulcanizing effect on the material, hence the hardness of the anthracite over the lignite and bituminous coal; thus peat is embryo coal (or coal is deteriorated peat) which by the latest improved patent process is converted almost immediately into coal, retaining all the original heat-bearing properties, and none of the detrimental features of the coal, such as sulphur, phosphorus, and other foreign materials which produce gases so injurious to the boiler surfaces. Peat does not contain any slate or foreign substance to form clinker and residuum in the fire-box, as is usually found after burning either bituminous or anthracite coal.

Peat being a smokeless steam producer, is superior to all other known fuels, as by its use you get almost perfect combustion. Peat briquettes give a long, bright flame, and intense heat from the moment of ignition, leaving no soot, clinker, or cinder, and very little ash, the combustion being even and complete.

Peat being a gaseous (not a radiant) fuel, requires only half the amount of air (oxygen) to produce perfect combustion; it leaves no clinker to obstruct the flow of the air, and the briquette, being cylindrical in form, permits free passage of air between the pieces; consequently, the grate bars are always clean and the volatile gases are released and come into perfect combustion by the admission of a sufficient amount of oxygen, without lowering the temperature of the fire.

Coal cannot be mined and marketed as cheaply as peat, as peat is on the top of the ground and often in close proximity to our large cities, making long hauls unnecessary by providing a market at the factory site, and enabling the manufacturer to supply the public direct in successful competition with coal.

The economic effects obtained by the use of peat may be grouped as follows:—

1. Production of direct results by combustion, warming, cooking, etc.
2. Production of indirect results through steam.
3. Production of indirect results through conversion into gas.

PREVIOUS METHODS AND FAILURES.

For centuries peat has been burned as an article of fuel; in Europe the primitive method of preparing the fuel for use was by cutting it out in square bricks and drying it in the sun, but this fuel was bulky, friable, dusty, crumbled in handling, and required too much room for storage to make it a commercial success, with other fuels in abundance.

¹Extracts from a paper by J. Campbell Morrison, C. E., read before the Robert Fulton Association of the National Association of Engineers.

The next step looking to the utility of this natural material as fuel was a process whereby the peat was ground to a plastic mass, or formed in brick shapes, dried in the open air, or in a kiln, till it became hard; but the product was a fissured block, the volatiles being liberated in the drying, and the block continuing to crack to such an extent as to unfit it for transportation.

Many patents have been taken out in this country and Europe for machinery to properly consolidate peat while wet, but they have all been comparative failures, as no permanency can be given to blocks that have to be dried after formation; the necessary solidity cannot be imparted or maintained to prevent reabsorption of moisture.

Many systems of machinery have been patented for the production of a peat briquette by what is known to the art as the "dry process," which is the forming of the block after the material has been deprived of water (which is usually fifty to seventy-five per cent); there are but three that I consider worthy of your consideration, after making an exhaustive study of every system in use in this country and Europe; they are as follows:—

1. A carbonized block of peat. The peat was partially dried and heated, then brought to the point of carbonization between hot rolls and pressed in a *hot mould* into a dense block. In heating the material, the tar and lighter volatiles were liberated and thrown off, thus reducing the efficiency of the fuel one-third, but producing a block extremely dense, which could be transported without injury.

Suitable machinery for carrying out this process was never built or perfected, owing to the death of the inventor.

2. Some ten years later patents were taken out for the production of a *cold pressed* peat briquette in reverse to the previous method (or carbonized block) by simply subjecting the peat to heavy compression in a *cold mould*, relying only upon the glaze imparted to the briquette in the mould for its waterproof qualities.

By compressing the material cold and raw, the full caloric efficiency of the peat briquette was maintained (no volatiles being thrown off by heat), but the result was a briquette loose in texture, which disintegrated with moisture or in the fire, also necessitating the drying of the crude material to the atmospheric degree, which operation was expensive. The briquette also required an extreme degree of compression, as there was no bond used.

While this style of peat briquettes is an efficient steam producer and a smokeless fuel, it has to be transported in box cars and kept in dry places to keep it from reabsorbing moisture and disintegrating.

3. The third system of patented machinery is for the production of what is known to the art as a "seared" peat briquette.

The "seared" block embodies every feature of value found in either or both of the above-named systems, is more economical in production than either, or any other form of pressed peat known to me. While it contains far more combustible matter than the first-named, or carbonized block, it is free from the serious objections of the plain, dry-pressed block, which possesses no waterproof quality whatever, and is friable to such an extent as to unfit it for favorable consideration in any market.

The "seared" block burns completely, gives an intense heat from the moment of ignition, is absolutely free from sulphur, has no clinker, soot, smoke, or ash, ignites easily, is easy to regulate, and with no danger of asphyxiation, it being recommended by the highest medical authorities as a fuel for its hygienic advantages.

Professor Carpenter gives the caloric value of the best grades of Scranton (Pa.) anthracite as 13,805 B. T. U. against 13,330 in peat briquettes (according to the German chemical testing-station of Berlin), while Prof. C. L. Norton, chief of the Experimental Station of the State of Massachusetts and Institute of Technology, Boston, says that, with the proper preparation and mechanical pressure, peat will average 12,000 to 14,000 heat units to the pound and equal anthracite coal as a heat producer; and while analyses show a much higher ratio of fixed carbon in coal than in peat, there is one important element that must be taken into consideration in actual boiler practice, viz, the *volatiles* in the peat briquettes, for while the fixed carbon in peat only runs 27 per cent to 35 per cent, the volatiles run from 56.20 per cent to 65.09 per cent, resulting in a high degree of temperature being maintained in the fire by the volatiles coming into combustion, and consequently the perfect combustion of the hydrocarbons. Many authorities quote peat as a low-grade fuel on account of the small amount of carbon shown by analysis, but in actual boiler-tests made by myself I have proved the contrary.

PROCESS.

The following is an outline of their process for the manufacture of the "seared" briquette:—

The peat is dug from the ground by the excavating machine, which is very simple in construction and moves forward under its own power, propelled by a gasoline motor, where it is discharged onto a conveyor and carried to the expelling machine, where a preponderance of the moisture is thrown out by a patent automatic expeller.

In wet ground where it is impossible to work the excavator, the material is taken out with a sand-pump by suction.

From the expeller it proceeds to the disintegrator, where it is pulverized and passes on to the drier, which is a round cylinder 5 feet in diameter and 30 feet long, revolving on axles located at each end. Under this is a furnace, where heat is generated and applied to the exterior of the cylinder, the hot gases travelling the entire length

and back through the interior of the cylinder to the point where the material is delivered.

At this end there is located an inverted fan, which sucks the wet vapors from the material and at the same time tends to draw the heated gases through the material. As the cylinder is set on an incline, the dried material passes through by gravity and is discharged at the lower end, with about 20 per cent of moisture.

It is then conveyed to the breaking machine, where it is pulverized to a powder and elevated to the hopper bin above the presses. In passing through the presses, the peat is first pressed into hard, dense blocks and afterwards "seared" by liberating the tar and paraffin in the material by heat, thereby coating the exterior with a waterproof coating, making it impervious to moisture and spontaneous combustion.

The result of this process is to produce a smooth, oily and dense texture externally, so as to present the most inflammable constituents of the peat to the immediate action of the fire when igniting, to increase the hardness and water-resisting qualities of the manufactured fuel, and while not depriving the raw material of any really valuable combustible constituents (for an extreme preponderance of the lighter volatiles only tends to unduly hasten the consumption), to render the block more lasting in the fire, and, consequently, more approaching to hard coal in value for steam-raising, domestic and other purposes where the maximum of the heat is to be produced with the minimum feed and replenishment of fuel.

Thus it will be seen that this process contemplates a continuous operation from the time the material is excavated from the ground till it is turned out by the presses a finished, marketable product.

All material used for generating steam and operating the different machines is furnished from the refuse or waste peat about the plant, and no skilled labor is required, with the exception of the engineer in charge of the engine-room; thus the production of peat fuel by this improved method, in my opinion, solves the problem of furnishing a cheap, clean, uniform and reliable fuel for domestic and manufacturing purposes.

It is equally serviceable for grates, stoves, cooking-ranges, boilers and furnaces, giving a long, bright flame and intense heat from the moment of ignition, and its durability is equal to coal in combustion, as the density of the "seared" block insures the retention of its original form until the last atom of the inherent carbon and volatile gas have been consumed.

The combustion is so thorough and complete that no volume of free carbon or deleterious vapor is allowed to escape, hence its hygienic and economic value over hard and soft coal. It will not absorb any undue amount of moisture or otherwise deteriorate in storage, is odorless, and clean to handle.

A company has secured the exclusive patents on the machinery and process for the production of a "seared" peat block and is at present constructing the machinery for the first plant to be erected in the State of Illinois, and it gives me pleasure to state that in the near future we may look forward to the end of the smoke- nuisance and the dirt of coal firing, and I know that all engineers and firemen will gladly welcome the introduction of a clean, smokeless steaming fuel.

Before closing, I wish to state for the information of the gentlemen present that Russia produces annually 4,000,000 tons of peat fuel-briquettes and receives \$938,000 per annum for the leasing of the peat bogs. Germany produces 2,000,000, and Holland and Sweden each 1,000,000 tons of this fuel. Thus it will be seen that peat fuel-briquettes have passed the experimental stage, and the subject is one of sufficient importance to command the most earnest attention of the business man and manufacturer, on account of its application to domestic purposes, manufacturing and the arts.

In compiling the data for this paper, aside from the information gained by personal experience and observation covering some three and a half years, I have quoted freely from several writers of ability so that the facts presented are absolutely correct.

BOOKS PAPERS

AS far as it is possible to say any new word on the subject of graphic statics it has been said, and said well, by Mr. Sondericker.¹ As a matter of fact, hardly since the days of the first appearance of Green's "*Graphical Analysis of Roof Trusses*" has there been any really new thought offered on this subject. It is only in application to unusual or new problems that graphic statics finds chance for extended development. The principle is so simple and so easy of application that only slight changes have actually been introduced in methods during the past twenty or thirty years. Even the old system of notation ascribed to Bow has been retained. Personally our preference is for a notation on trusses in which the joints rather than the spaces are lettered. We have found it more convenient as designating beyond question which end of a strut or tie we mean while the Bow notation has always been a trifle confusing, but Mr. Sondericker adheres to it consistently. He has introduced

¹ "*Graphic Statics*," with applications to Trusses, Beams and Arches. By Jerome Sondericker, B. S., C. E., Associate Professor of Applied Mechanics, Massachusetts Institute of Technology. New York: John Wiley & Sons. 1903.

a few new developments of the funicular polygon which are convenient and easy of application and in Chapter II he has extended graphic analysis to include a point which is very often ignored in designing roof and steel frames, namely, the connections between the truss proper and the columns or walls upon which it rests. He presents some very clear analyses of the strains both vertical and inclined, and works out methods of transferring the strains in proper manner to the columns without undue lateral deflection. This portion of the book can claim to be new in many respects and is thoroughly commendable, and in combination with his analysis of wind-strains is very practical and effective. Also, his application of graphics to the deflection of beams is well thought out and presented. On the other hand, his discussion of the theory and analysis of the strains in an arch seems to us purely superfluous. It is curious that in most of the works on graphic statics the authors seem to feel called upon to give a great deal of attention to the arch, when as a matter of fact nearly all the theories of computation are based upon a false assumption, namely, the entire neglect of the strength of a mortar joint. In engineering practice the strength of an arch may sometimes be calculated. We have never known of such an occurrence in connection with architecture, and the arch, as such, does not exist in modern construction. Furthermore, we would find the book more usable if all the purely algebraic work were cut out and

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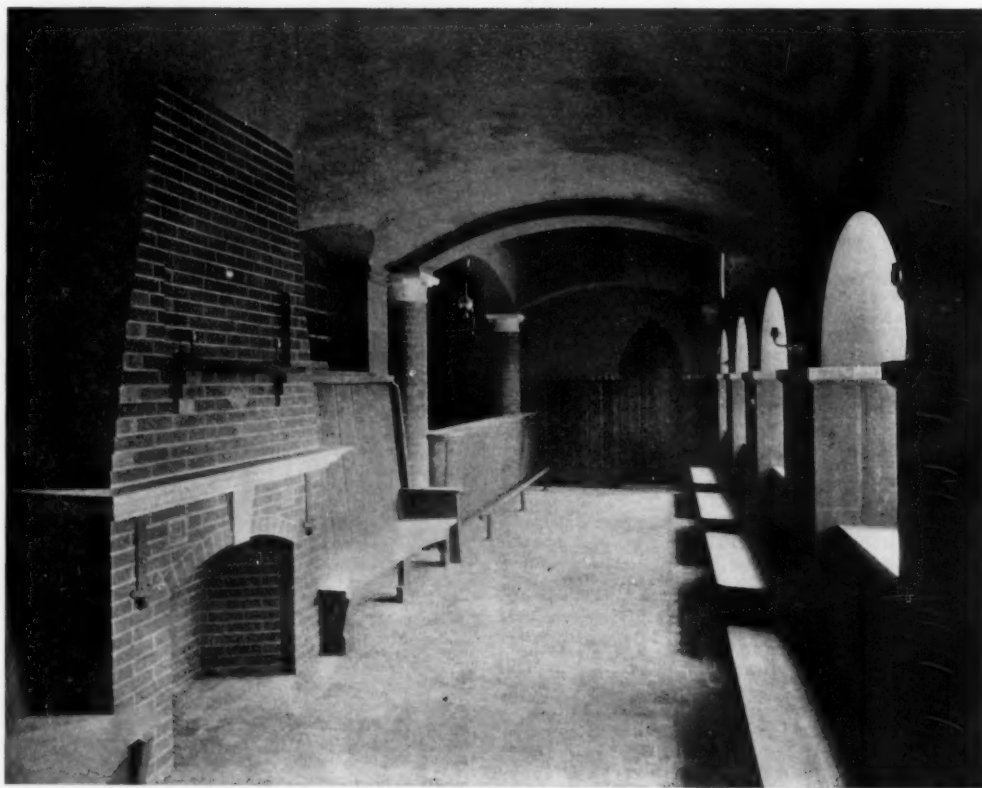
ILLUSTRATIONS

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

A COMPETITIVE DESIGN FOR THE CATHEDRAL OF ST. JOHN, DENVER, COLO. MR. FREDERICK J. STERNER, ARCHITECT, DENVER, COLO.

It should be understood that all the drawings in this competition were submitted in pencil on tracing-paper. This at once accounts for their simplicity and their seeming imperfections as reproductions.

TENNIS AND RACQUET CLUB OF BOSTON, BOYLSTON ST., BOSTON, MASS. MESSRS. PARKER & THOMAS, ARCHITECTS, BOSTON, MASS.



Spectators' Gallery: Tennis and Racquet Club, Boston, Mass.

only graphics left. The author states that the student ought to check all his graphic work by algebraic analysis. We do not agree with this statement at all. Aside from the foregoing particulars, however, the work is thoroughly practical and usable in many respects, and presents what might be expected from one who had had a long experience at the best technical school in the country.



THE ARCHITECTURAL DRAUGHTSMEN'S CLUB.

A NEW club has been formed in New York City, with a membership limited strictly to architectural draughtsmen, with the objects of study and fellowship.

A series of monthly sketch competitions are proposed, the first one being a seal or emblem for the club.

On the 8th inst. a nucleus of thirty members adopted the above name and a constitution and elected the following officers and committees to carry on the work:—

SMOKING-ROOM OF THE SAME.

VESTIBULE OF THE SAME.

WASHINGTON SCHOOLHOUSE, EVANSTON, ILL. MESSRS. PATTON & MILLER, ARCHITECTS, CHICAGO, ILL.

Additional Illustrations in the International Edition.

SOUTHWEST VIEW: TENNIS AND RACQUET CLUB OF BOSTON, BOYLSTON ST., BOSTON, MASS.

A COMPETITIVE DESIGN FOR THE CATHEDRAL OF ST. JOHN, DENVER, COLO. MESSRS. DUHRING, OKIE & ZIEGLER, ARCHITECTS, PHILADELPHIA, PA.

FRONT ELEVATION OF THE SAME.

CONSUMPTION IN NEW YORK CITY.—The deaths from consumption in New York have decreased forty per cent since its Health Department began its crusade against the disease two years ago.—*N. Y. Evening Post*.



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

A SUBSTITUTE FOR CINDER CONCRETE.

BALTIMORE, MD., Dec. 21, 1903.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—I have just glanced over the current numbers of the *American Architect* and have been interested in your editorial suggestions of a substitute for cinder in concrete.

In my earlier years I have very commonly seen in the London (Eng.) suburbs, great piles of material slowly burning on the lots and roadways of new properties, such as "Building Parks."

According to my recollection, these were masses of the local clay, interspersed with slack or small coal, which was ignited and burned days and weeks. The residue was an artificial matrix for concrete and road building—already in small sizes (1 inch to 2 inches perhaps).

No kiln required; no railroading, no hauling.

Possibly others can give more exact particulars or find objections to the material.

Yours faithfully, THOS. C. KENNEDY, Architect.



PROCESSIONAL FRIEZE FOR THE ST. LOUIS FAIR.—The authorities of the St. Louis World's Fair have approved the plan of having a processional frieze around the ornate Palace of Liberal Arts. The chief of mural decorations, Louis Julian Millet, is arranging to have art-students of various cities employed in laying on the base colors and preparing the canvas for the figure-work to be done by the artists who will receive commissions for the work. The *Freeman's Journal*, of Ireland, is authority for saying that the artists of Great Britain will doubtless make a better showing in the Art Palace at the Fair than was made by them at the last Paris Exposition in 1900.—*N. Y. Evening Post*.

A HOUSE FOR EACH SEASON.—James W. Davidson, United States Consul to Formosa, has written an account of a unique tribe living on a small island adjacent to Formosa, who have a house for each season of the year—cold, wet and dry. Each family possesses a splendid walled and stone-paved compound, wherein are three distinct houses, attesting the cleverness of the natives and their desire to obtain the maximum of comfort. One house, built half-way under ground, is their winter residence. For the warmer weather they have a comfortable building, elevated some feet above ground, and for protection against the heat of summer they have a tower-like edifice, sufficiently elevated to catch the cool breezes. These huts serve not only as habitations, but also as workshops and storehouses. In construction, a considerable amount of wood is used as supports and cross-beams, and for the inner floor, ceiling and walls of the two large huts. The elevated structure is of wood, bamboo and straw. A shelf projects level with the entrance, and the inhabitants are obliged to mount this and then crawl in on all fours, the doorway not being much larger than the entrance to a good-sized dog-kennel. The room is like a large, flat box, some 7' x 8', and is so low that one lying down can almost touch the ceiling with uplifted hands; but the savages always squat, so the place is high enough for them.—*National Geographic Magazine*.

SEA-WATER FOR CITY USE.—The experiment of employing sea-water for watering streets and flushing sewers, which has been tried by the local authorities of a number of towns on the English coast, has been a failure. Says the *London Lancet*: "The wastefulness, not to say folly, of using for such purposes water that had at considerable labor and expense been filtered to the highest attainable degree of purity seemed obvious, and though, of course, it involved the installation of a separate system of pumping-stations, mains and hydrants, the fact that the supply was inexhaustible and itself cost absolutely nothing was so evident that it was strange that this source had been neglected so long. The sanitary and economic results seemed more than to justify the innovation, for, to say nothing of its slightly antiseptic action, the hygroscopic property of the salt caused the effects of each watering to last for a much longer time, and the surface of the roadway was believed by some to be more compact and cohesive than when fresh water was employed. Besides these retrenchments, the new system presented a direct source of revenue in the demand by many private householders for a salt-water service to their bathrooms, so that they might enjoy the luxury of sea-bathing at home." Unfortunately, the disagreeable features of the plan were not immediately apparent, but they have now come to light: "The owners of carriages complain of the destructive action of the salt mud on the varnish and paint, and the tradesmen complain of the injury inflicted on goods of all kinds by the salt dust and its subsequent deliquescence. Lastly, the users themselves, the local authorities and their private customers, have discovered that the salt water exerts such a corrosive and generally destructive action on metal pipes and fittings that the number of

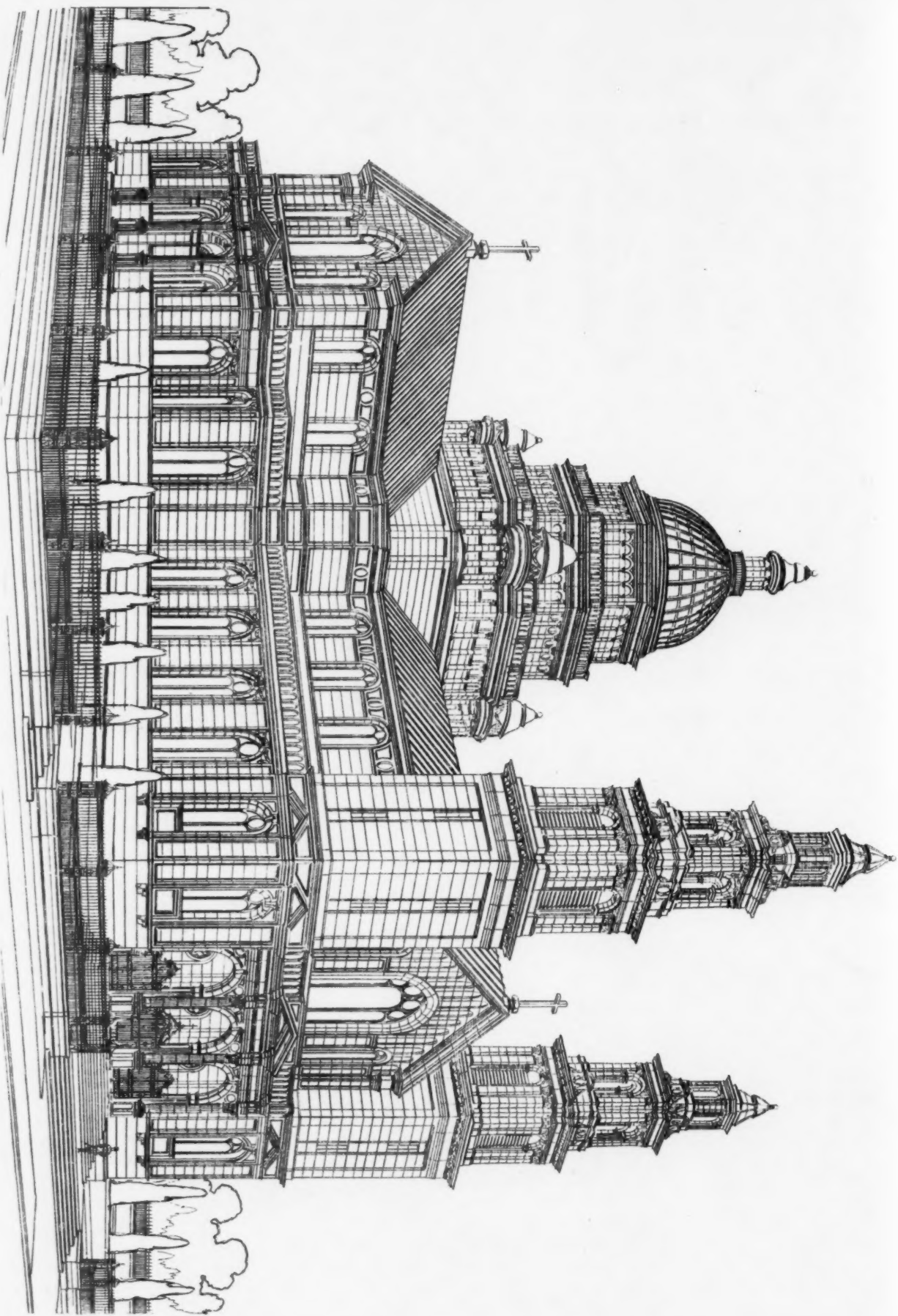
persons contracting for a domestic supply has fallen from 200 to two, and the leakage from the street mains has caused the deaths of the trees planted in the best streets and promenades, so that the engineer to the corporation [Hastings] that had been the pioneer in the movement finds himself compelled, in an exhaustive report of its experience, to admit that the system has been a complete failure."

THE SMOKE-TEST.—Since the smoke-test became popular in various cities of the United States a few years ago, several different styles of smoke-test machines have been placed on the market, which can be supplied by any of the large plumbing-supply houses. These machines consist, as a rule, of a reservoir, or smoke-chamber, and a bellows for driving the smoke into the drainage system. The smoke-reservoir has a pipe extending inside up to near the top, and connected with an outlet, to which a hose is attached for carrying the smoke to the fresh-air inlet or outlet on the roof, as convenience may suggest in use. Owing to the various styles of fresh-air inlets, greater difficulty would be met with in applying a smoke-test at that point than on the roof unless the wire balls for protecting the roof pipes are securely fastened to bands and calked into the roof waste and vent lines. In either case an opening into these pipes has to be made, so that the hose can be inserted, and, as a rule, wrapping with oakum is sufficiently air and smoke tight to answer the ordinary requirements. All the other openings from the fresh-air inlets, waste, vent and soil pipe lines must then be closed, or they may be closed only at the time the smoke appears coming out of the different pipes. After all these provisions are made it is time to fire up the smoke-machine. This can be done by taking off the cover of the smoke-reservoir and putting into it oily waste, tarred paper, or any convenient material that will make a dense smoke in firing, and with little danger of producing a blaze. Tarred paper is considered best by many plumbers. After the material is lighted the bellows is operated by the lever, sending in fresh air to continue the combustion and generate the smoke, which, by the same operation, is forced out of the combustion-chamber, or smoke-chamber, through the hose into the house drainage system. Care should be taken not to operate the bellows so as to generate too great a pressure after the various pipe lines have been closed, otherwise the smoke under pressure may force the seal of some trap under a sink, wash-basin, bath-tub or water-closet, and give the impression that there is a leak in the pipe lines in the house. If the smoke-test is carefully applied and the machine operated by a careful workman, there is little danger of this trouble. After there is evidence that all the pipe lines are full of smoke, a careful investigation should be made of each line of piping through the house, from the horizontal drain in the cellar to every vertical line and fixture connected with it. Not infrequently cracks in the hubs are discovered, and it is often found that the surface of a lead pipe has not been thoroughly tinned in wiping the joint where a trap or fixture is connected with the waste line, when smoke will escape under the solder, indicating that a new joint should be made. Where nickel piping and screw fittings are used under fixtures, a broken thread or a faulty connection will sometimes show a leak. The popularity of the smoke-test has grown from the fact that when the odor of smoke is detected there is little difficulty in tracing it directly to the point of leakage, for a close investigation will show the smoke puffing through the crack or opening at each movement of the lever of the smoke-test machine, while, with the peppermint-test, the exact location of the leak is often difficult to find. Cracks in rusty cast-iron soil pipe that are not readily discernible to the eye will let little jets and puffs of smoke escape that can be readily seen, and the same is true of improperly tinned lead-piping, where wipe-joints have been used. Again, great care has to be taken in peppermint-tests, so that a leak in one room will not penetrate and give the impression that it is in another, while, where the smoke-test is applied, no inconvenience to the family is necessary. The house can be used just as if no test to the drainage system was under way.—*The Metal-Worker*.

FOREST RESERVE PROBLEMS.—In his annual report to Congress, Secretary Hitchcock, of the Interior Department, says: "There are now fifty-three forest reserves created by presidential proclamations under Section 24 of the Act of March 3, 1891, embracing 62,354,965 acres. This is an increase over last year of 2,179,200 acres. The good effect of the forest-fire law is shown in the decreasing number of camp and other small fires. In 1901 there were discovered 1,335 such fires; in 1902 there were 1,083, and in 1903 there were 597, although there was a material increase each year in the area reserved, and for which fire-reports were made. Sheep-grazing in forest reserves is presented as a serious fraud and injury, which cannot be prevented under the laws as they now stand. The trespassers are difficult to reach, and the regulations imposed by the Department have been declared unconstitutional by a federal court in California, from which decision there is no right of appeal to the Supreme Court. Injunction proceedings have proved valueless, as writs cannot be secured and served until the damage has been done. The Secretary recommends legislation on this point. He also urges that the forest reserves be transferred to the control of the Department of Agriculture."

RESTORATION OF THE BASILICA OF ST. JOHN LATERAN.—The Pope has expressed his satisfaction to Cardinal Satolli, archpriest of the Lateran archbasilica, of the work, now in progress, of restoring the basilica of St. John Lateran, especially the roof, which threatened to fall in. The late Pope Leo XIII. had already given a sum of money for the church's restoration, but, as it was insufficient, he interested the Franciscans in the matter, and they made a quest throughout the world. Pope Leo requested the Franciscans to engage in this work because of the legend, painted by Giotto, according to which St. Francis of Assisi, in one of his visions, saw the Lateran Church falling, and the saint, in order of Christ, hastened to uphold the walls.—*N. Y. Evening Post*.



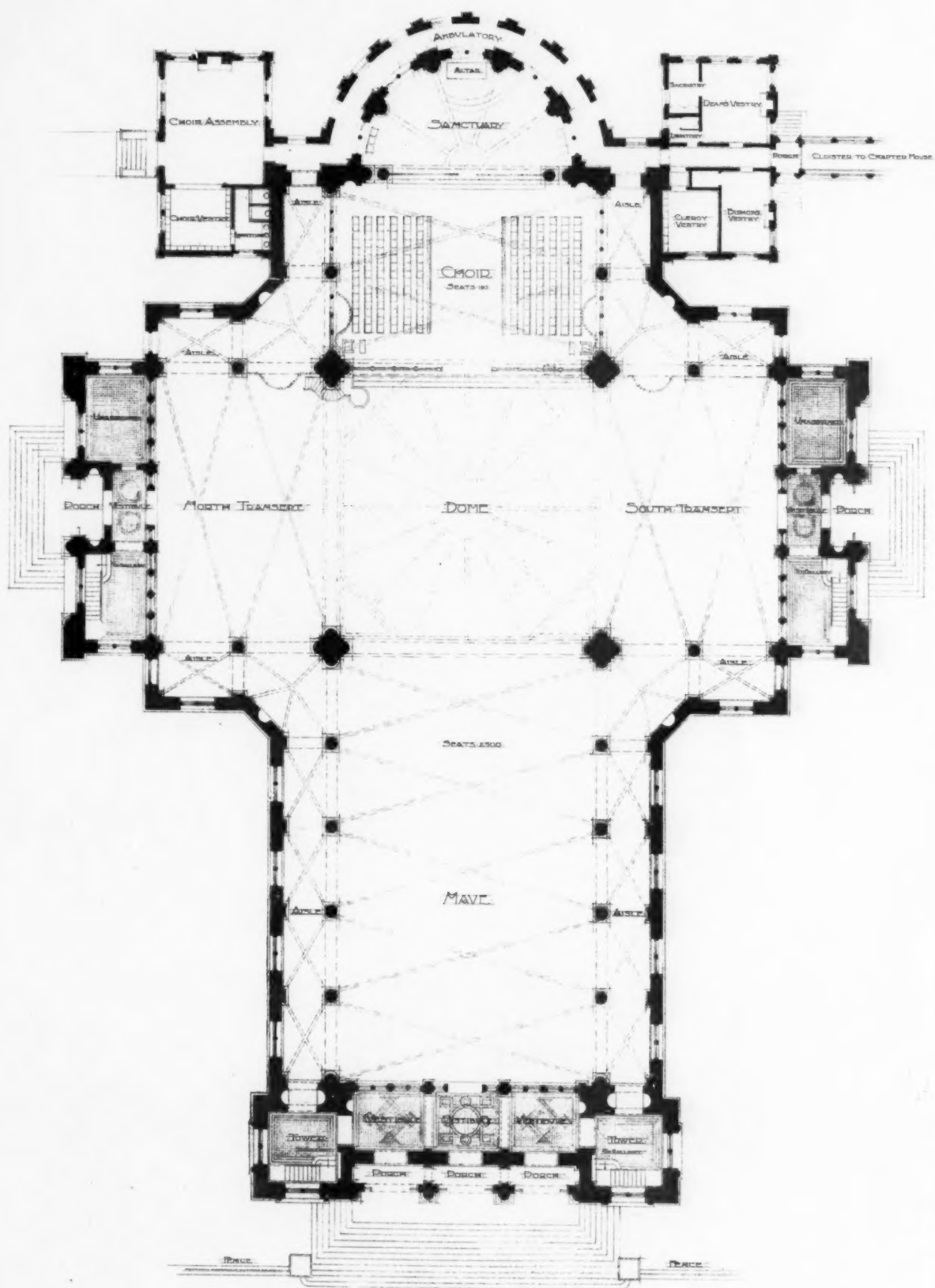


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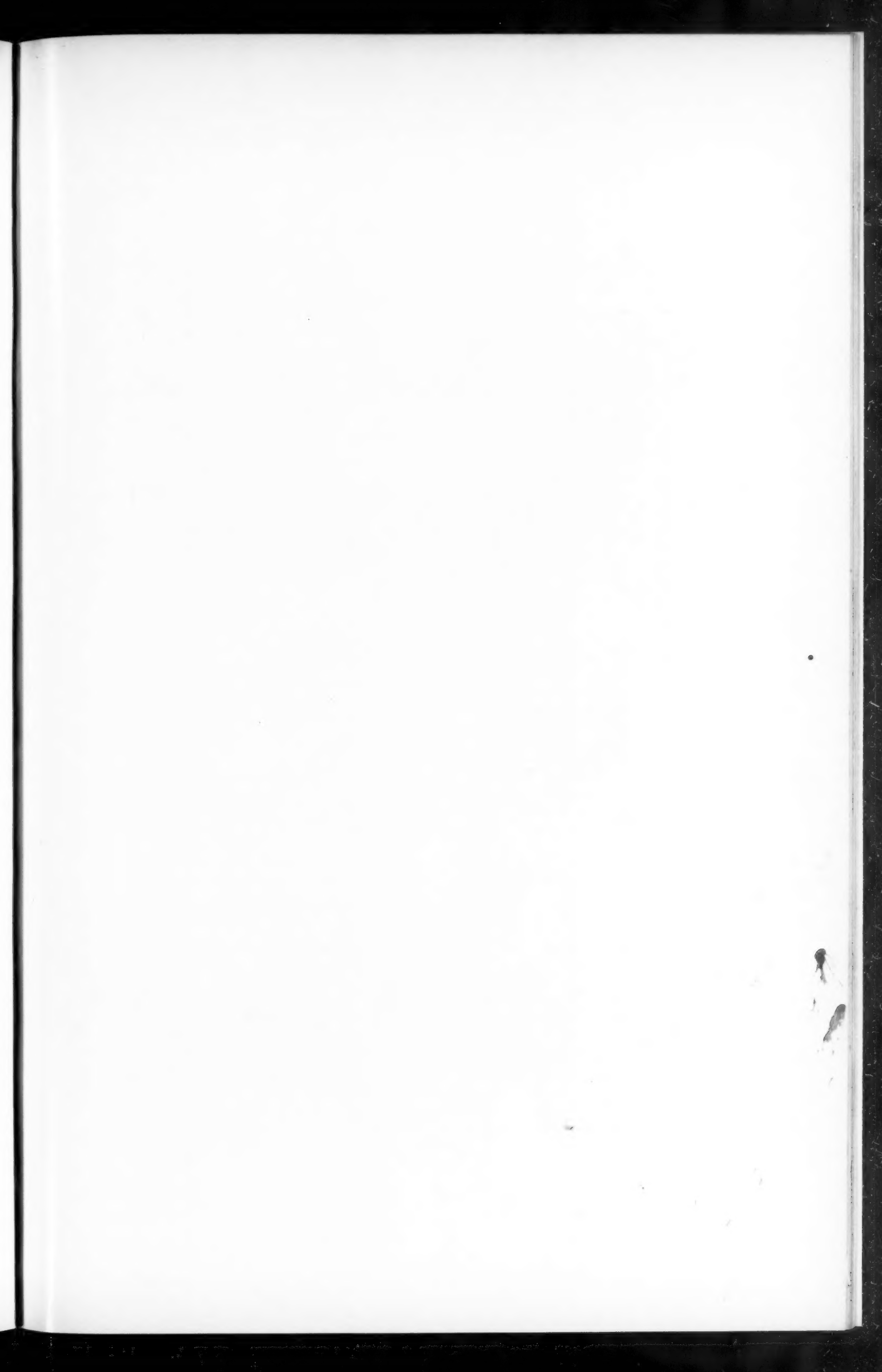
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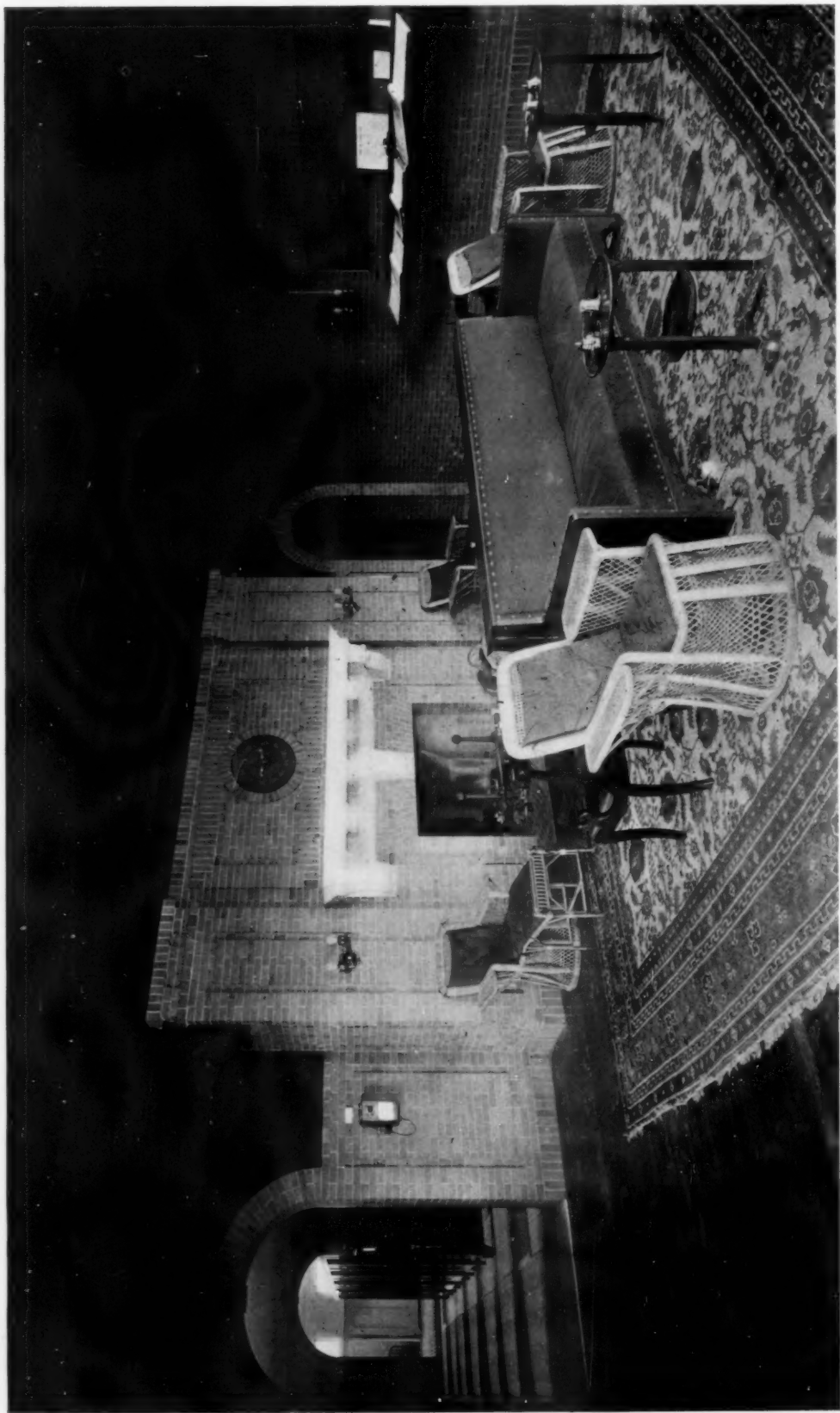
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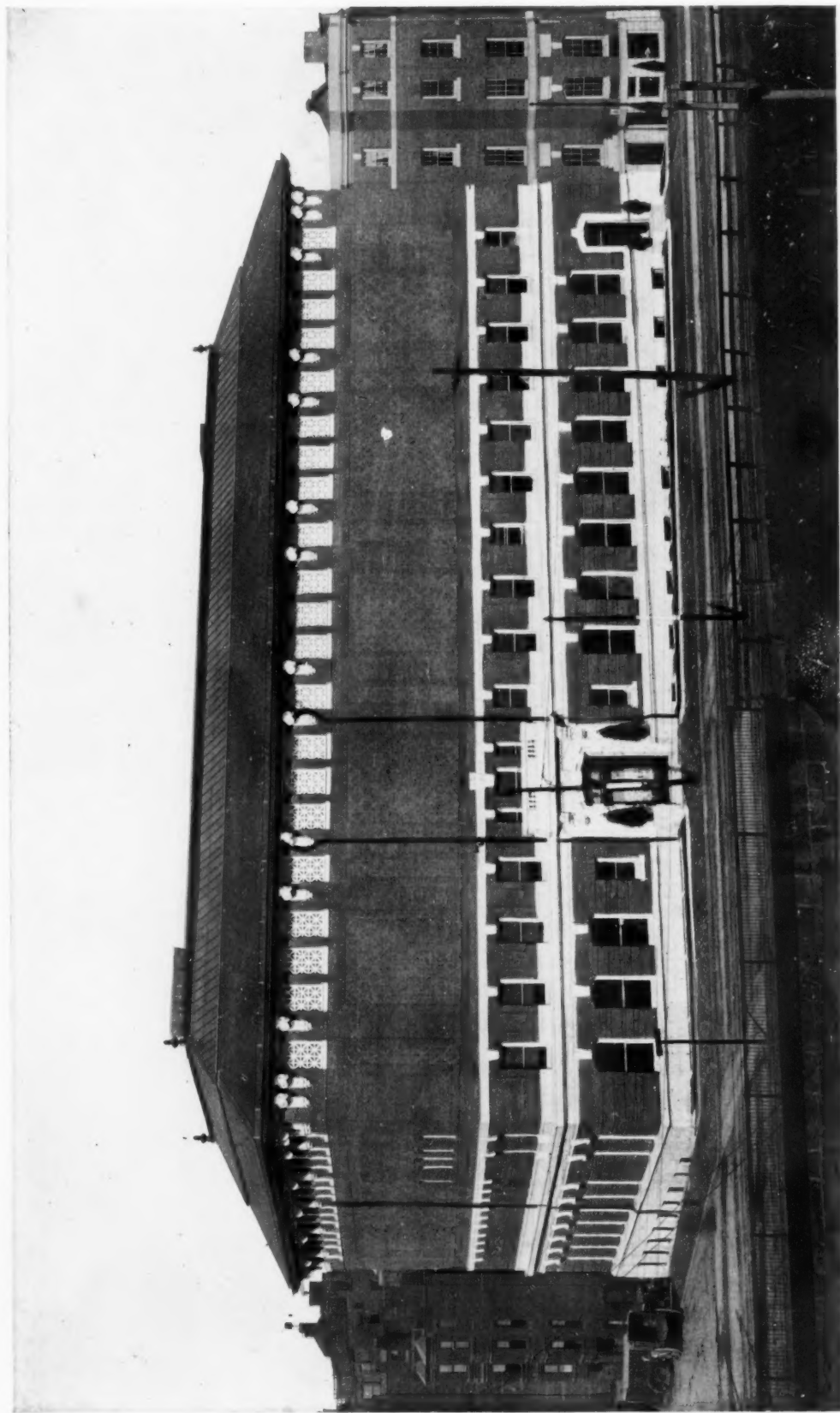


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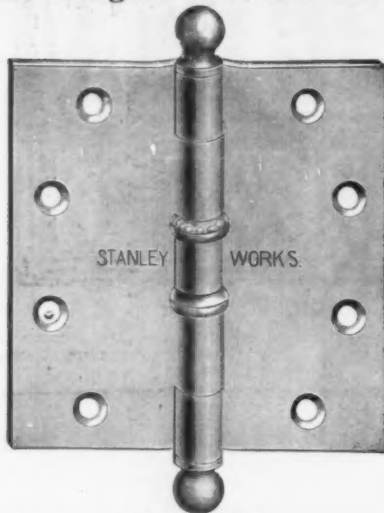
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CODE OF PRACTICE FOR SUB-ESTIMATING AND SUB-CONTRACTING

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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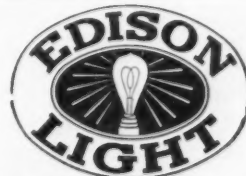
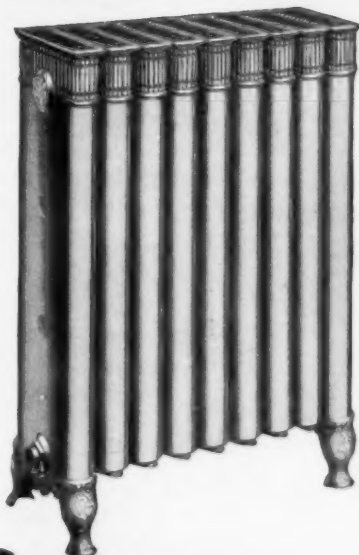
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PUBLIC BUILDINGS

City Hall, New York, N. Y.		Date 1803-12
Old State House, Boston, Mass.		" 1748
Pennsylvania Hospital, Philadelphia, Pa.		" 1755
Carpenters' Hall, Philadelphia, Pa.		" 1770
Independence Hall, Philadelphia, Pa.		" 1729
Faneuil Hall, Boston, Mass.		" 1741
and others.		

CHURCHES

King's Chapel, Boston, Mass.		Date 1749
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
and others.		

IMPORTANT HOUSES

Fairbanks House, Dedham, Mass.		Date 1636
Royall Mansion, Dedham, Mass.		" 1737
Philipse Manor House, Yonkers, N. Y.		" 1745
Tudor Place, Georgetown, D. C.		" 179-
Mappa House, Trenton, N. Y.		" 1809
Woodlawn, Va.		" 1799
Mount Vernon, Va.		" 1743
and others.		

Incidentally there are shown special measured drawings or large views of the following features and details:

Porches and Doorways		67 Subjects
Staircases		23 "
Mantelpieces		89 "
Pulpits		9 "
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In addition to the subjects enumerated above there is a large quantity of measured and detailed drawings of Cornices, Ironwork, Gateposts, Windows, Interior Finish, Ceiling Decoration, Capitals, etc., together with elevational and sectional views of entire buildings.

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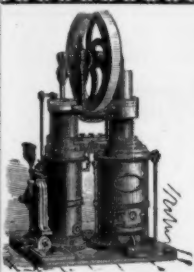
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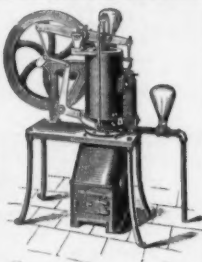
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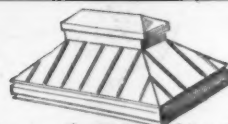
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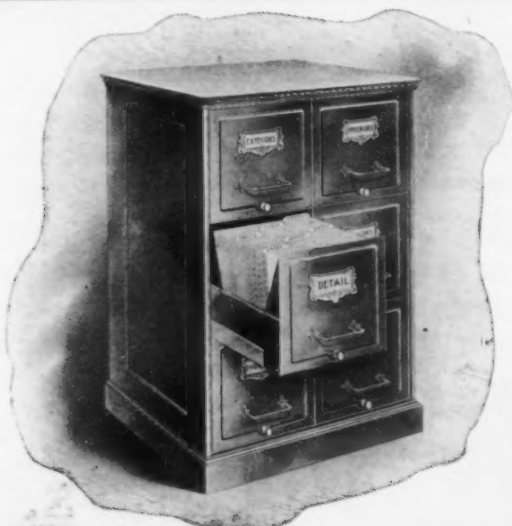


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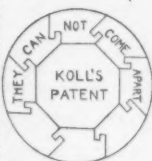
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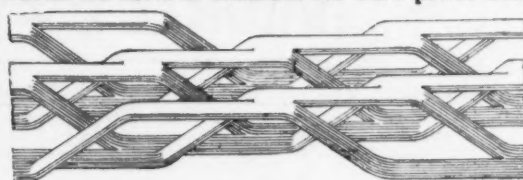
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BUILDING INTELLIGENCE.
(Advance Rumors Continued.)

Osborne is working with Architect Long in the preparation of plans for the proposed new hospital building at Baldwin Ave. and Montgomery St.

Kansas City, Mo.—The new church which will be built next year at the southwest corner of Independence and Gladstone Boulevards for the congregation of the Christian Church, which now worships at the corner of 6th St. and Prospect Ave., will be designed in as nearly a pure Grecian Ionic style as is compatible with the requirements of a modern church. The structure will cost about \$100,000, and of the amount more than one-half has been subscribed by Robert A. Long, president of the Long-Bell Lumber Co. The site was also given by Mr. Long. The plans for the new church are almost ready. Van Brunt & Howe are the architects.

Knoxville, Tenn.—The Juniors will erect a \$50,000 temple.

Lafayette, Ind.—A press report states that the Faculty of the Purdue University are contemplating the erection of a \$100,000 gymnasium.

Marblehead, Mass.—Plans for the Federal building to be erected here are in process of preparation by Peters & Rice, of this city, who have been selected by the United States Treasury Department as architects. The building will be constructed of red brick, with white marble trimmings, in the Colonial style of architecture, and will be one of the most complete of its kind in that section of the State. It is expected that the building will be completed within a year.

Montreal, Que.—Messrs. Finley & Spence, the architects, have prepared plans for a new building which is to be erected for the McGill University Y. M. C. A. on the site of the present structure, McGill College Ave. and Sherbrooke St. The structure will be of Indiana limestone, built after the Italian Renaissance school of architecture, and exclusive of the basement will be five stories high. The basement will contain a restaurant, kitchen and boiler-room. The building will cost \$95,000.

Newport, Ky.—Plans have been prepared by Des Jardins & Hayward, St. Paul Building, Cincinnati, O., for a \$75,000 hotel to be erected at Ross Point, Kentucky Highlands.

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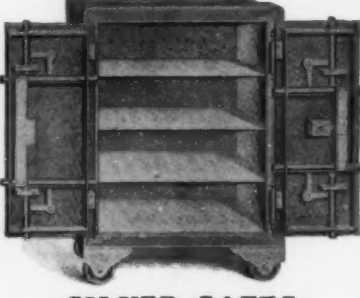
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(Advance Rumors Continued.)

New York, N. Y.—The Board of Estimates has authorized the closing of 32d St., between 7th and 9th Aves., preparatory to the erection of the new terminal of the Pennsylvania railroad.

Plans have been filed for a twelve-story fireproof apartment-house to be erected at Broadway and 68th St. for the Spencer Realty Co., at a cost of about \$800,000. Mulliken & Moeller, 7 E. 42d St., are the architects.

McKim, Mead & White, architects, 160 Fifth Ave., have filed plans for a three-story brick and stone public library to be erected at 135th St. and Lenox Ave., at a cost of \$60,000.

C. B. J. Snyder, architect, 59th St. and 4th Ave., have filed plans for a four-story brick school to be erected at 149th St. and Union Ave., at a cost of \$110,000.

Plans have been filed for a thirteen-story annex to the fourteen-story publishing building for which plans were filed some months ago, and which is to be erected for the Publishers and Printers Realty Co., of this city, at No. 310 to 328 W. 38th St. The main building is to be 250 feet front and 98.9 feet deep, and is estimated to cost \$1,000,000. The annex is to be 50 feet front and 98½ feet deep, and is to be built in 37th St., in the rear of the main building. The architects are W. B. Tubby & Bro. The cost of the annex is estimated at \$200,000.

George Harding, as architect for the Realty Amusement Co., has filed plans for the conversion of the old church in W. 48th St. into a music-hall for Morris Hayman, George Lederer and others at a cost of \$65,000. The building has a frontage of 60 feet and a depth of 100 feet.

Plans have been filed for the remodeling of the former club-house of the Reform Club, at the northeast corner of 5th Ave. and 27th St., into a loft and store building for the estate of Charles A. Coe, owner. The improvement is to cost \$25,000. The architects are V. H. Koshler and J. M. Farnsworth.

The plans for the new Fordham Hospital, to be built by the Board of Trustees of Bellevue and Allied Hospitals for the accommodation of that section of the Bronx lying between 172d St. and the city boundary, have been completed by R. F. Almiral, the architect. The new hospital buildings will cost about \$550,000, and will occupy four acres, to be purchased from St. John's College, at the junction of Crotona Ave. and the Southern Boulevard. The Board of Trustees plan to begin construction of the new hospital early next year and to finish it if possible before autumn.

Plans drawn by Geo. Kelster were filed at the Bureau of Buildings, Manhattan, for a new theatre to be built for the A. C. & H. M. Hall Realty Co.,

BUILDING INTELLIGENCE.
(Advance Rumors Continued.)

at No. 157 to 161 E. 86th St., to be known as the Yorkville Theatre. The cost is placed at \$162,000.

Architect C. F. H. Gilbert, 1123 Broadway, has drawn plans for a handsome new private residence to be erected at Nos. 18 and 20 E. 68th St. for H. T. Sloane, 854 Broadway. Designs show a six-story building of brick, stone and iron, to have the latest improvements and conveniences. Architect will have full charge and will let general work in one contract.

Philadelphia, Pa.—An operation of 26 dwelling-houses will be started by Jos. Ferner. The houses will be erected on the west side of 61st St., north of Market St. They will measure 16' x 56', be two stories high, of brick and stone, and cost about \$80,000. They will be constructed of brick and stone and have hot air heat and all modern appliances.

Cope & Stewardson, architects, will invite estimates after the first of the year for a municipal building in Washington, which will provide quarters for the Commissioners of the District of Columbia. It will be a six-story brick and stone structure, to cost \$1,500,000. It will be located on the south side of Pennsylvania Ave., between 13½ and 14th Sts.

Plans are being prepared by Baker & Dallett, architects, of this city, for a club-house for the Spring Haven Country Club. It will be erected at Wallingford, Pa., and plans will provide for two-story building, of stone and wood, to be handsomely finished and equipped. A stable will be built in connection with the club-house.

Pittsburgh, Pa.—The new Carnegie Technical School will consist of five main buildings: the Administration, the School of Applied Science, the School of Mechanics and Artisans, the School of Applied Art and the Women's Industrial School. All these buildings will not be started at once. It is probable that the Administration Building will be the first completed. A site for the school is being surveyed and specifications for needed structures will soon be ready for architects.

Providence, R. I.—The contract for erecting the eight-story fireproof Lapham block is stated to have been awarded to Hartmell, Williams & Kingston, 49 Westminster St. Cost, \$200,000.

Sacramento, Cal.—Frank Hudson, of Los Angeles, is to be the architect for an administration building to be erected at the Southern California Hospital, at a cost of about \$80,000.

Spokane, Wash.—The Lyceum Theatre Co., of Portland, contemplates purchasing a second lot and

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erecting a \$60,000 theatre building instead of a \$20,000 structure as planned.

St. Louis, Mo.—Plans for a new theatre to be erected at Chestnut St. and Broadway have been drawn by Wm. A. Swasey, 705 Olive St. Cost, \$200,000.

St. Paul, Minn.—Omeyer & Thorl, architects, of St. Paul, expect to have plans completed about January 1 for the new Lutheran hospital to be erected on 14th Ave. and 24th St. S. Cost, \$75,000.

Tacoma, Wash.—The Northern Pacific Railroad Co. are to erect a new hospital for the benefit of the Pacific Coast employes at this place, to cost \$100,000. A site has been selected and work will begin next spring.

Toronto, Ont.—Plans have been prepared by Mr. Beaumont Jarvis for the erection here of a ten story office building of the most modern type. It will be entirely fireproof, and the whole building, interior and exterior, walls, partitions, floors and ceilings will be of concrete. The cost of the building will be about half a million dollars.

Uniontown, Pa.—E. Woodyatt, of Chicago, Ill., has prepared plans for a residence to be erected in this city for J. V. Thompson, which will include a private electric plant and independent water works to be operated by natural gas on the premises. Cost, \$100,000.

Waukegan, Ill.—A new business block will soon be erected here by Dr. V. C. Price, of Chicago, at a cost of \$80,000. It will be one of the finest structures in the city, and will have two electric elevators and other modern appliances.

PROPOSALS.

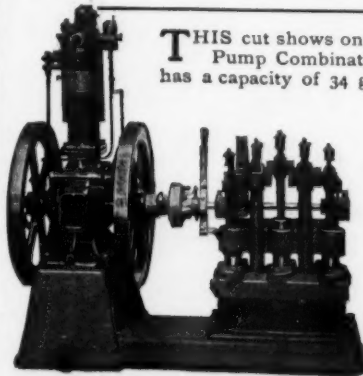
Treasury Department, Office of the Supervising Architect, Washington, D. C., December 17, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 7th day of January, 1904, and then opened, for the low pressure steam heating and ventilating apparatus, complete in place, for the U. S. Custom-house and Post-office building at Newport News, Virginia, in accordance with drawings and specification, copies of which may be had at this office or at the office of the Superintendent at Newport News, Virginia, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect.

Treasury Department, Office of the Supervising Architect, Washington, D. C., December 12, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 25th day of January, 1904, and then opened, for the construction (except heating apparatus, electric conduits and wiring), of the U. S. Post-office and Court-house at Athens, Ga., in accordance with the drawings and specification, copies of which may be had at this office, or at the office of the Postmaster at Athens, Georgia, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect.

Treasury Department, Office Supervising Architect, Washington, D. C., December 11, 1903. Notice is hereby given that the time for opening the bids for the construction (except heating apparatus) of the U. S. Post-office and Court-house at Harrison, Arkansas, has been extended from January 7, 1904, to January 21, 1904. JAMES KNOX TAYLOR, Supervising Architect.

PITCH HOUSE. [At League Island, Pa.] Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, until January 9, 1904, for constructing a brick building at the Navy Yard, League Island, Pa. Funds available \$3,300. Plans and specifications can be seen at the Bureau or will be furnished by the Commandant of the navy yard named. MORDECAI T. ENRIGHT, Chief of Bureau.

COURT-HOUSE. [At Camden, N. J.] Office of the Camden County Building Committee Court-house, Camden, N. J., December 15, 1903. Sealed proposals will be received at the office of the Camden County Building Committee until 2 o'clock P. M., on Monday, the 1st day of February, 1904, and then opened, for the general construction (except heating apparatus, elevators and electric wiring and conduits) of the Camden County Court-house, Camden, N. J., in accordance with the drawings and specifications, copies of which may be had on and after December 15, 1903, by application at the office of the architects, Rankin, Kellogg & Crane, 1012 Walnut St., Philadelphia, Pa. All applications must be accompanied by a certified check, in amount \$125, which will be held by the architects until return of the drawings and specifications, upon receipt of which the amount of certified check will be returned less the sum of \$15, which will be retained as a charge to cover cost of duplication and printing. Copies of the drawings and specifications may be seen also in the present Court-house, Camden, N. J. Camden County Building Committee, IRVING BUCKLE, Chairman.



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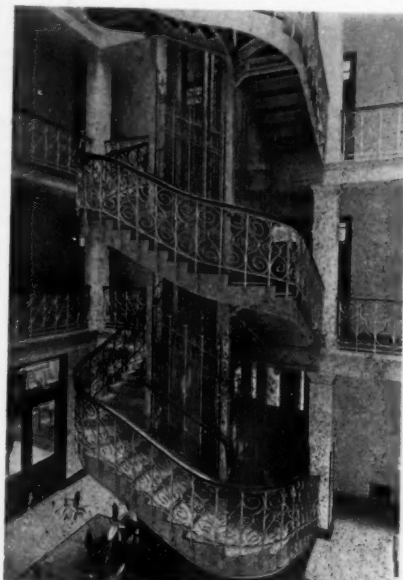
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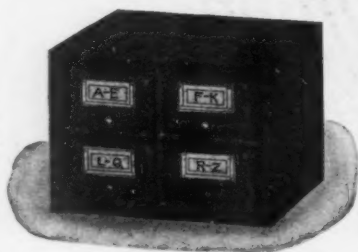
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SECTION 3. No Member should be a party to a building contract except as "owner."

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