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THE New York *Evening Post* has a word of comfort for architects and builders, and especially for building workmen who have before them the prospect of a hard winter. The house-smiths, particularly, who have done more than any one else to bring about the calamities which have befallen the building industries, are said to be already suffering from want, and hundreds of them are applying to the Iron League for employment, regardless of their union connections. So far as possible, work is given them, but the ruffians of Parks's union lie in wait for them at night, and assault them, so that the wretched men work in terror of their lives. For them, and their families, even with the help of the employers, there is no hope of avoiding distress later in the winter, as, according to all accounts, no more important buildings are contemplated, or are likely to be undertaken, after those now in hand are completed, until many months have passed. On the other hand, as the *Evening Post* points out, small building work, particularly in the outlying districts, shows signs of revival. In New York, as in all our cities, the increase of population has overtaken the provision of dwellings; and, while the millionaires are more than provided with costly houses, magnificent hotels and dazzling apartment-houses, the average citizen has found it hard to secure accommodations, at increasing rents. Now, it seems, New York builders and real-estate owners are beginning to talk less fluently of millions than they did a year ago, and are ready to make contracts for building houses of a value which they would recently have blushed to mention. As the average cost of dwellings in the Bronx is only about eight thousand dollars, it is obvious that a good many of them must be built to rival, in the aggregate, the colossal operations of the past; but statistics show that the total of dwelling-house construction in contemplation amounts to a very respectable sum.

SOME interesting technical questions have been raised in the investigation, now going on in New York, of the charge, made by Merchants' Association, that the dam of the new Jerome Park reservoir is in a dangerous condition, on account of its faulty construction. One of the particulars in which faulty construction is charged is that "rock-dust" was mixed in the mortar used for the masonry, instead of sand. The engineer in charge of the work, Mr. Ulrich, testifies, in a straightforward manner which it is pleasant to note, that he gave personally the order to use the "rock-dust," in consequence of tests made by him, during three successive years, of mortar made with it. He testifies also that Mr. Alden, one of his assistant engineers, objected to its use, and that he asked Mr. Alden in what way the rock-screenings, as he calls them, were inferior to sand.

IT does not seem to have been brought out in the testimony whether these "rock-screenings" had a grain of definite size, or were simply the finer part left after screening out ballast, or concrete material. If they were the latter, we think that most architects would have agreed with Mr. Alden in thinking them inferior, for making mortar, to good sand. Even presuming the screenings to consist, like sand, of hard, angular particles of silica, which is an important point, a mixture of coarse and fine particles is not believed by most architects to be desirable in an aggregate for mortar-making. Whether it is that fine sand is less likely to be properly mixed with the

cement than coarser grains would be, or, as is more probable, that the voids in fine sand do not afford sufficient space for the proper crystallization of the hydrated cement compounds, we will not attempt to say; but experience has certainly led most architects to require a larger proportion of cement to be used with fine than with coarse sand, and, even then, to regard mortar made with fine sand as inferior.

AS the lawyers who appeared in the case did not seem any better qualified than engineers to say in what respect mortar made with rock-dust was objectionable, they shifted their ground, and declared that Mr. Ulrich had no right to order the substitution of screenings for the sand specified in the contract. Naturally, the counsel for the engineer and contractor claimed that he had such a right, and on this point an instructive controversy is likely to arise. Of course, the contract may have given the engineer the right to make variations at pleasure; but, unless it did so, the usual rule is that an architect or engineer is empowered to order changes from the contract only in case of some exigency of construction; and, if he, in view of such exigency, orders changes, it has been held that his orders are valid, even if the contract gives him no authority to make variations. In this case, however, there seems to have been no such exigency. There could have been no insuperable difficulty in procuring sand, and, supposing the screenings to have been cheaper, a desire to save the contractor's money is not an exigency of construction. Even supposing that the screenings cost more than sand, and that the contractor benevolently consented to use them, on account of the engineer's belief that they were better, it is very doubtful whether the latter could legally order them to be used, or consent to their use, without, at least, the authority of the Aque-duct Commission. The complainants claim that the dam is leaky and unsafe, in consequence of this material. It is more likely to be leaky in consequence of the absence of any material in the joints than on account of the use in them even of an inferior mortar, but, apparently, a more thorough examination will be needed before the truth of the matter is arrived at.

MODERN churches formed the subject of an interesting paper by Mr. C. A. Nicholson, read before the English Architectural Association the other day, and discussed by the members. The historical part of the paper dealt with the revival of church building in England after the Napoleonic wars, and showed how curiously it was influenced, alternately by the Classic fashions of the age, and by the Gothic tendencies fostered by the Tractarian Movement, and the revival of interest in ritual; while the practical part pointed out the methods of securing effect in churches without extravagant expense, and compared the cost of church buildings erected in England at different periods within the last two centuries. American architects are so familiar with English work of this kind that it is unnecessary to repeat Mr. Nicholson's criticisms of the churches of Butterfield, Street, Scott, Brooks and Pearson, but it is worth noting that the best of these are uniformly distinguished by a solid and sober construction. The English Church Building Society, which refuses to aid in the erection of churches in which any sham construction is proposed, has probably done much to promote good methods of building and simplicity of design, but it is questionable whether some of its regulations, such as those refusing to sanction galleries and prescribing the dimensions of pews and passageways, may not have tended to produce the uniformity and formality which is nowhere more objectionable than in church design. However that may be the English architects seem to be quite ready for an increase of freedom in the planning of churches in which we may with advantage follow them. During the discussion of Mr. Nicholson's paper, for example, a member spoke of the disposition seen in some mediæval churches in the East of England, in which the entrance porch is on the side of the church, usually facing south, and pews are placed only to the east of this point, the space behind them being left open, to accommodate chairs, or persons standing, as the case may be. We have seen a somewhat similar arrangement in a church in a small Italian town, where, contrary to the usual Italian custom, permanent pews, richly carved, and marked with the name of the proprietors, were provided for the principal families of the

place; and the object, or, at least, the result seems to be to make the church more attractive to poor people and occasional visitors, who dislike to intrude themselves into the pews, but are glad to find space in the church where they can have a chair to themselves.

AS a matter of fact, the mode of seating has great influence upon the popularity of a church. We would hardly like to say that the size of a congregation is inversely proportional to the softness of the cushions on which it sits, but a fashionable Paris church, for instance, like the Madeleine, is filled at every service with rich and poor people, sitting amicably side by side on hard chairs, where the equally fashionable St. George's, Hanover Square, in London, would show only one or two hundred people, sitting primly in their private pews, while curious strangers look timidly in upon them from the door. The device of the open area behind the pews, which, by the way, we have seen in an American church, meets this difficulty very happily, besides affording opportunity for possible addition of pews, and furnishing a space where the members of the congregation mingle on their way in and out of the church, to the advantage of the social feeling which is considered so desirable in most churches, but which cannot well be cultivated in passageways and vestibules. We do not, by any means, sympathize with those persons, found mainly among the clergy, who favor having the baptismal font made with a lifting cover, like a wash-tub, so that it can be used as an altar when not needed for other purposes, and who like to see tables for church fairs set in the chancel; but that does not prevent us from wishing to see more originality and freedom in church-planning. One of the English architects spoke emphatically of the objections, for example, to the east window. It has long been the orthodox opinion in this country that every church, after the supposed example of English churches, must have a large window in the east end; and, in pursuance of this theory, thousands of people are sent to sleep every Sunday, and thousands more are distressed and annoyed, by the glare of stained-glass in their eyes. The fact is that, in the large English churches, the east window is usually high above the floor, the entrance to the Lady chapel often coming beneath it, so that there is less annoyance from the glare than in many a smaller modern church, to say nothing of the fact that the great English and Continental churches were built for a totally different ritual, which did not involve sitting for an hour and a half in a pew, gazing straight forward. This particular English architect thought that a dossal, or other mural decoration, at the east end of the church, illuminated by side-lights, was much better than a window; while another thought that there should be no windows in a chancel, either in front or at the side, but that all should be left in a reverential gloom. We will not attempt to decide between these two views, but it is worth remarking that an infinity of beautiful effects of lighting are possible, both for the chancel and the other portions of the church, and that the architect who wishes to apply to this problem the resources of his art will find an inviting field before him.

SOME curious statistics have been published in connection with the official management of the Paris Exposition of 1900. Although the Exposition was managed by the Government, a large amount of private capital was contributed to it, which was mainly lost, but the administration of the public funds devoted to it seems to have been very successful, the actual excess of receipts over expenditures having been, according to the official balance, about fourteen hundred thousand dollars. This shows the last Exposition to have been much more profitable to the Government than any other ever held in France, and it is unfortunate that the exhibitors should so generally have lost money that many of them will never again take part in an affair of the kind. It is said that a considerable part of the losses of exhibitors was due to the dishonesty of their employes, but, apart from this, many of them nearly or quite ruined themselves in preparing magnificent exhibits, which brought them in little or no return.

IF Paris should hold another Exposition, which we hope may be the case, the State can, apparently, well afford to reduce the charges to which exhibitors were subjected at the last one, and which proved, to many of them, a crushing burden. Besides the direct profit, of nearly a million and a half dollars, which the Treasury derived from the affair, it profited indirectly to a very large extent. For example, the revenues from cus-

toms increased, during the Exposition year, by about nine million dollars. Nothing is said in M. Picard's figures, about the increased profits of the Post-office, but they were very important during the Exposition of 1889, and were, presumably, not less so in 1900. The Bank of France, which is, to some extent, a Government institution, reports that its deposits increased about a hundred million dollars in 1900, and that its "productive operations" were about seventeen hundred thousand dollars more extensive in 1900 than in the preceding year. Supposing these "productive operations" to have resulted in an average profit of five per cent, which is certainly not an extravagant estimate, the total extra profit for the Exposition year would amount to more than eight million dollars. The theatres report an increased receipt, during 1900, of five million dollars, which, presumably, they kept for themselves; and the city of Paris, undoubtedly, also kept to itself the increased octroi receipts, of more than two millions. The railroads report receipts about sixteen million dollars greater than in the preceding year, and the omnibuses and tramways of Paris, although no figures are given, probably profited in still greater proportion. Altogether, M. Picard estimates that at least three hundred million dollars of foreign capital was brought into France during the Exposition year, and left there, in exchange for transportation, amusement, or French products.

M. PLANAT, in *La Construction Moderne*, thinks that universal Expositions, at least in France, "have entered the domain of history." Even if the last one had not proved so disastrous for exhibitors, the remodelling of the Champ de Mars, by rendering the site used for so many Expositions unavailable, will greatly increase the difficulty of planning another in Paris. Nevertheless, the Parisians are so fond of showing their beautiful city, and the rest of the world is so fond of going there, that we are inclined to think that other exhibitions will be arranged there before many years. They may not cover, like the last, the entire range of human science, art and industry, but they can be made interesting without being too extensive, and they are sure, in Paris, to be attractive, well arranged, and efficiently and carefully managed.

A LADY writes to *La Construction Moderne*, making a suggestion which is worth following. In her opinion, women, to whom a house means so much more than it does to a man, and who, if they would only prepare themselves for such work, might accomplish such admirable results in making their dwellings attractive, should be encouraged to study seriously the principles of architectural proportion, the proper use of detail in different styles, and the laws of harmony in color. Fortified with an adequate knowledge of these things, a woman would be enabled to resist the eloquence of the furniture salesman, and the allurements of passing fashions, and to create around her, in such measure as her skill and talent might permit, a really beautiful and artistic interior. For the instruction necessary to this end, women would have to apply mainly to architects, and the fair correspondent of *La Construction Moderne* thinks that, in return, they might supply architects with hints as to the convenient planning and adornment of habitations. We cannot say that we are very sanguine as to the value of any more feminine assistance in house-planning than is already available to architects. Most members of the profession have listened long enough to the suggestions of their lady clients to understand tolerably well the views of the sex in such matters; but it may be that, with increasing artistic cultivation, women, who certainly have a good opportunity for studying interior effect, will develop new and valuable ideas; and it is certainly worth while, as *La Construction Moderne* suggests, to collect feminine impressions on the subject.

AN English amateur of antique furniture has brought to justice a dealer who sold him a set of furniture as genuine Chippendale work. The amateur, who was from the provinces, discovering that his prize bore very small resemblance, either in design or workmanship, to genuine Chippendale furniture, sued the dealer for damages, and recovered two hundred and fifty dollars. The dealer, in his defense, pleaded "the practice of the trade," and it appeared that he was in the habit of putting stray pieces of furniture together, and advertising them as "the property of a gentleman going to South Africa," or of "an actress going abroad," in addition to his representations about Chippendale, and the judge warned him that such "trade practices" were likely to land him in jail.

GARDEN DESIGN IN RELATION TO ARCHITECTURE.¹

A GARDEN is that part of nature which we find immediately surrounding the home of a man with a soul; it is that "without which buildings and palaces are but gross handiworks." It is in the nature of man to demand some sort of order in all that immediately surrounds him; his house — to protect him against the winds of heaven, — he builds in orderly fashion, and likewise that portion of nature around and about him he arranges in some sort of order, partly for his convenience and partly because his art instinct and creative faculty compel him to do so. If he were not to do this nature would soon outgrow him, unless he were in barren soil, and in choosing the spot for a home, barren soil is the place above all others that he will avoid. Therefore, his habit from earliest history has been to carry his ideas of order into the outer world, and to extend the boundaries of his home beyond the limits of his house walls; and in doing so to make a little enclosed Eden about his dwelling, in which he may play pretty fancies with those living beauties of nature that will lend themselves to the moulding of his energetic mind.

The only fundamental difference between the building and its garden is that the one is formed, by man's art, of minerals from beneath the earth's surface and vegetable products that have ceased to live, and that the other is formed by man's art of the same minerals (in its steps, walls, paths and so on), and vegetation that has not ceased to live; that is, of flowering plants and shrubs and trees, of grass to cover the bare surfaces with, and creepers to climb the walls and make pictures upon them.

Some thoughtless people say that a garden is nature, but that a building is not; and my object this evening is to demonstrate that a garden, properly speaking, is no more a part of nature, or to be designated as natural, than the house is; and this appears to me to be so, because a garden is formed by human labor, on a most careful system of selection of one kind of material and rejection of another, as is the case in the building of a house. The rose and the snow-drop are both admitted within the enclosing hedge of the garden, but the bramble, the thistle and the dock are not encouraged to root themselves and drop their seeds into its fertility. And again, a proper disposition of those plants that are admitted is essential; you cannot permit the oleander to grow into the side of the hibiscus, or the magnolia to overcrowd the orange-tree, else neither will come to any perfection. You must divide the flowers up into their different beds, and lay down paths to get at them, and to see their beauty from; you cannot let them grow at random, and the grass and the weeds choke them, for that would be nature and not a garden.

No! there must be grass-plots and flower-beds, or there can be no garden. And I hope this evening to emphasize what appears to me to be a fact of no small importance to those who lay out gardens, but, nevertheless, one that is often overlooked, viz, that a garden is a work of art, and that there is indeed most distinct relation between the design of gardens and the design of architecture; that the rules of art that apply to the design of the one must necessarily, therefore, stand as a test of merit or demerit in the design of the other. In support of the view that gardening is an Art, I will quote from the writings of three prominent men.

Lord Bacon, the prince of gardeners, says: "A man shall ever see that when' ages grow to civility and elegance, men come to build stately sooner than to garden finely; as if gardening were the greater perfection." Professor Huxley says: "It will be admitted that the garden is as much a work of art, or artifice, as anything that can be mentioned. The energy localized in certain human bodies, directed by similarly localized intellects, has produced a collocation of other material bodies which could not be brought about in the state of nature. The same proposition is true of all the work of men's hands, from a flint implement to a cathedral or chronometer, and it is because it is true that we call these things artificial, term them works of art, or artifice, by way of distinguishing them from the products of the cosmic process working outside of man, which we call natural, or works of nature. The distinction thus drawn between the works of nature and those of man is universally recognized."

Sir Walter Scott says: "Nothing is more the child of art than a garden." Wordsworth, in writing to a friend, says: "Laying out grounds, as it is called, may be considered as a liberal art, in some sort, like poetry and painting, and its object is, or ought to be, to move the affections under control of good sense, that is, those of the best and wisest; but, speaking with more precision, it is to assist nature in moving the affections of those who have the deepest perception of the beauties of nature, who have the most valuable feelings, that is, the most permanent, the most independent, the most ennobling with nature and human life."

Then, if a garden is as much a work of man's art as his house is, it is, owing to their oneness and inseparableness, as much the architect's business to design the garden as to design the house. For the garden is a kind of "betweenity" wherein man has cajoled nature into aiding him in making his house sit comfortably in her midst. It is a place in which her flora and living green are pressed into service as the introduction from primeval wildness to the complete artificiality of the house. And so the garden, with its "host of golden daffodils," its "daisies pink and violets blue," its gay parterres and sweet-scented borders, its wildness and walks of solitude, becomes the outdoor house as the building is the indoor house of the

home. The moment you step inside the garden's entrance gates, you come into the region of the home; and, as your own arrangement of order commences when you leave the highway, there should be unity in that order; there should at once prevail a harmony in design that shall spread its influence over the whole work of the habitation down to the minutest detail of the house and its equipment. And this unity is scarcely attainable except under the guidance of one designer. This ideal of unity in design is actually what prevailed up to about the end of the seventeenth century; but, owing in general to the break in continuity of traditional art in all its phases at about that date, and in particular to the extravagances into which the art of formal gardening had fallen, there sprang up an aversion to all gardening of the form in which it had been practised from time immemorial, and a popular craving for "the wildness of nature," which it was held had been forsaken in the pursuit of visionary ideals of art.

The people had scarcely thought of art in a garden prior to this, nor until they were told by Kent and Brown, the "immortal" Brown, as he was named in his own day, that they had sinned, had violated the laws of nature, and that they must destroy all their fine terraces and make ruins of their gazebos, and return to nature's wildness by adopting his system of "landscape gardening."

And, lo and behold! knowledge seemed to come upon them as it did upon Adam and Eve when "they knew that they were naked," and they marvelled that they could have cut nature into trim shapes and wild fantasies, and they verily did destroy the things that this "immortal" told them to. The woodman's axe rang up and down the land as it felled many of the finest avenues the world had ever seen. Terrace walls and steps, fountains and sun-dials, such as have never been erected since, were ruthlessly swept away, in order that what was termed nature might be brought up to the very threshold of the house; and all, forsooth, because nature never grew trees in rows or built terrace walls in the forests!

And in place of all that was destroyed, what did these champions of "nature" give to their generation? Among other things, they made all their paths and roads to wriggle (the shortest distance between two given points was no longer desirable); they destroyed cut edges, and sunk their garden enclosures into haw-haws, destroying all the charm of seclusion that English gardens had hitherto been so rich in. They made ruins of old architectural adornments in the gardens, nay, more, they built ruins to represent architecture devastated by the ravages of time; they actually erected dead trees among the living ones on their boundaries, the more to counterfeit the primeval forest. They carted boulders to their gardens, and grew the wild things of nature over them, as a make-believe for rocks! They formed watercourses, with huge stones in their beds, utterly regardless of the fact that their land was not of a stony nature, over which the water might gurgle, and make weak and fraudulent representation of the rushing of the mountain torrent; and rumor has it that they tied stuffed birds of fine plumage in the trees, to the distress of nature's songsters, who, being scared from so unholy a place, built their nests in the clipped hedge of the peasant's garden, and sang him their songs instead.

Of beds for flowers they must needs have a few, so they made them of many shapes, because they argued that one of nature's proudest distinctions was her wealth of variety, and, therefore, the garden must be filled with variety, too; so they made beds "shaped as crescents and kidneys, beds like flying bats or bubbling tadpoles, commingled butterflies and leeches, stars and sausages, hearts and comas, monograms and maggots, a motley assortment, to be sure . . . and the pretty flowers smiled a sickly smile, out of their comic beds, as though Paradise itself could provide them with no fairer lodgings!" And the wonder is that Brown and his followers were not consistently mad enough in their much-talked-of love of nature to extend their work of destruction of art to the house also, and advise the mud hut or the rock cave in place of the beautiful homes England had so great cause to be proud of. But he went just far enough to ensure his system gaining a hold of the people; and, although for more than a century now his vacant orbits have been choked with earth's clay, it is only of late years that men of letters have sounded the death-knell of his system, and that we have realized that gardening is an art and not a haphazard product of nature!

Before the end of the seventeenth century the art of formal gardening was in its dotage. Following on Renaissance influence it had run into the wildest extravagances and architectural absurdities. After the restoration in England, when the intimate relations between Charles II and Louis XIV brought the people into closer touch with their neighbors across the Channel, the British mind became much affected by the luxurious extremes in the gardening of the French and Italian schools.

At this time, that extraordinary genius Le Notre covered 200 acres of ground at Versailles with some of the most wonderful gardening the world has yet seen; and which, had it stopped there, would probably have been better thought of than it is to day. But it did not stop; one extreme led to another, and in England the eclectic spirit bespattered the land with innumerable vagaries of Renaissance design, with gigantic water basins among other things, pools of Apollo with dolphins, stone swans and sea nymphs a playing at leap-frog in the splash of the fountain; and in the waters' midst they placed the artist-god, old Vulcan,

¹ A paper by W. R. Butler, Fellow, read before the Royal Victorian Institute of Architects, Melbourne, Australia.

"Before, deep fix'd, the eternal anvils stand;
The ponderous hammer loads his better hand."

And over against the willows, Artemis turned Actæon into a stag because he had seen her bathing! And there they were, all in the same pool, higgledy-piggledy, many of them the grossest sculptures, and more of them used in execrable taste. And in company with the architecture of the garden the topiary work of the period had gone cranky too; temperance nowhere remained; knots and little geometrical beds, the use of colored earths and tiles, and a thousand-and-one other tricks and artifices, had piloted the art of garden design, through the enticing waters of luxury, straight on to the rocks; as like practices have, mercifully, done in termination of periods of luxury in all branches of art.

Yet I cannot resist a plea for extravagance in gardening, or help thinking that intemperance in it is one of the mildest offences against the laws that govern its opposite virtue in man. Aristotle says: "We call not men intemperate so much with respect to the scents of roses or herb perfumes as of ointments and of condiments." You may have the intemperance of the miser, and may conceive of intemperance in charity, but the latter is less ignoble than the former! and so in gardening money may be spent intemperately, but this form of extravagance bears with it a certain palliative feeling that at the bottom of it was the love of nature and of beauty.

It is, however, not surprising that the effect of these excesses on garden design was a swinging back of the pendulum to primeval nature. But the spirit of the age was bent on follies, so they went to the other extreme, and out of the chaos caused by disgust at excesses sprang the before mentioned school of landscape-gardeners, and its hero and author who bore the memorable name of Brown, and who, however, happily died in 1783: rest be to his soul.

A few of the far-seeing soon perceived that landscape-gardening was not all that it might be. For the advocate of the new system must of necessity still select his trees and shrubs from far and near; he could not let them grow at random as in nature; he must clip his hedges or they would outgrow him; he must cut his lawns or they would become prairies; the wild fowl's wings on the pool he must clip too, or she will fly away from his unnatural "nature."

He could not entirely exclude design, so his effort was devoted, as before stated, to the attainment of counterfeits of nature. And this creation of counterfeits, or attempted reproduction of nature, is the meanest use to which man has ever put his God-given faculty of art. Nature refuses to be counterfeited, and man's intelligence is too keen to be deceived for long by the profoundest efforts of the warped genius of a stray fellow-mortal.

And this mimicry of nature, this landscape-gardening, is the only form of garden design that never had, or ever could have, any relation in it to architecture, or for that matter to "anything that is in heaven above, or that is in the earth beneath, or that is in the water under the earth." It cannot be denied that there was nothing original about these new methods of the landscape-gardener. They were sheer mimicry, made with the deliberate intention of deluding the eye into believing that the hand of man had not interfered with the common processes at work under her natural laws; and it failed, as all such systems must fail. For there are certain laws of proportion and curvature, of balance and contrast, that underlie all systems of design; and except these principles, or laws of life, exist in them, no system of design will live over the passing day, until the coming of the final doom.

There can be but two broad types of garden design, the formal type, which was acknowledged from Homer's day up till the time when Brown visited us, and is now again acknowledged among men of letters and art; and its opposite, known as landscape-gardening, which has fruitlessly struggled in the race for a century or so, but has long shown strong signs of distress.

The picturesque name of "Landscape" gardening was given to the system it was intended to describe by its foster-parents, who likewise christened the old style "Formal"; a term that is not in itself likely to give popularity to the system. These two phrases of "Landscape" and "Formal" gardening are by no means properly descriptive of the two varieties they stand in the mind for, except, perhaps, in the extremes of the "Formal" type, in which objection can hardly be taken to the term when applied to some of the stiff and soulless designs that are produced under this designation. The line of demarcation between these two extremes, like all imaginary lines between good and bad work in art, is very difficult of definition.

A garden may be more or less "Formal," but as it becomes less "Formal" it approaches the nearer to its opposite, which might be named more appropriately the "formless" garden instead of the "landscape" garden, as the pot-hook path and the kidney bed no more resemble the landscape than the straight path or the bed of geometrical figure. But there is a meeting ground between these two extremes, in which we may all confer, with the common object of strengthening the elevating and ennobling love of idealized nature in a garden.

I do not say that a garden cannot be interesting and beautiful without cut trees, trimmed hedges, geometrical beds, and so on, for the flowers have a happy way of asserting their own beauty wherever you put them. But I do wish to say most emphatically that for all these things in their proper places, a garden is a nobler creation and that the flowers are therein given the greater opportunity to display their grandeur; and, what is more, in this style of garden there is unlimited opportunity for the individuality of the designer, as there is also infinite scope for the skill and artistic abil-

ity of its owner, seeing that he may develop it this way or that, at his own will, with deeper imprint of higher faculties than is possible in a system that gives to art only a secondary place, if place at all. Any one with a little water and manure can grow a Banksian rose over an old stump, and a very beautiful thing it is too, but there are very few owners of gardens who have the skill and patience to maintain a well-cut hedge with some good sculptures of his own in it. Any one can plant a shrub, and grow it well with a little care, and it will be a beautiful shrub if grown as nature grows it. A block of marble may be beautiful too, but it becomes more so if, when we put it into a building, we turn it into a statue of Venus. And so with a shrub, if we bring it into a garden we remove it from its natural bed, we bring it under the influence of art, and we may then add to its natural beauty by putting a little of the soul of man into it, in the form of a beautiful bird, such as a peacock.

I do not deny a considerable skill in the growing of plants, but that is the skill of the horticulturist, and is of a less exalted quality than the designer's skill, as it is in all branches of human labor. The horticulturist is the right man to plant and grow a daffodil or a rose, but in matters of designing and laying-out of gardens the horticulturist or landscape-gardener of the common description is to the garden designer just what the builder is to the architect, what the foreman of the works is to the engineer of a great bridge or sea embankment; and as gardens are so mixed up with architecture, and their constructional designs are so dependent upon the principles that those of architecture are, it is almost as much the business of the architect to qualify himself to design the garden as to design the house; and, I may say, his privilege too, because there is hardly any more pleasurable part of an architect's work than the arrangement of the gardens about the houses of his own design.

It is well known that certain styles and periods in architecture employ varieties of the same geometrical figures, and have often distinctive features common only to themselves. The skyline in one style is broken by the dome, or the cupola; in another, by the sharp point of the Gothic gable. The windows in some are intricate, in others are square openings in the wall, all of which may have their counterparts in the well-designed garden.

But the every-day house has no very decided architectural distinctions; neither cupolas nor sharp pointed gables are common in this country; nevertheless, they do occur, and all of our houses have some features to counteract, or characteristic feeling to conform with, that may be met in many ways, as, for instance, in the adoption of the tall and slender or the low and rounded tree, in intricacy or simplicity of beds; or a terrace-wall may be advisable on this side to supply some deficiency in the design, or on the other side to give stateliness or height to the building.

There are always conditions of site and of aspect, of boundaries and adjoining roads, that must be taken into account, and provision should be made for shade from the western sun; and in the case of many flowers, for protection from the north wind, but on this side it should be of such nature as not to shut out the winter's sun, which is very low in the northern sky during that period when the garden needs it most.

We in Australia have done little as yet in the way of "building stately," in comparison with what has been done in the Old World, and with what we will do in the future; and "men come to build stately sooner than to garden finely"; nevertheless, we "may sound the clarion" as we think of noble gardens. Bacon says: "For gardens (speaking of those which are indeed prince-like) the contents ought not well to be under thirty acres of ground, and ought to be divided into three parts, a green in the entrance, a heath or desert in the going forth, and the main garden in the midst, besides alleys on both sides." And in the laying-out of our own Federal Capital, if we so set our grounds and buildings in order that gardens of no mean nature may be built up, if not by us, by others who follow us, it will prove that we have done the better for having thought of gardens of a princely fashion.

The planning and laying-out of homely gardens such as are within our reach, and as should surround every house in the land, are matters of constant occurrence. And we have our public gardens also, which, in order that the best results may be obtained in the maximum of pleasure these gardens can give, should be laid out on proper systems of design. Unfortunately the designs of many of them consist chiefly of wriggling pathways and irregular curves that are utterly devoid of beauty of line, or any attractive feature, curves that destroy all feeling of repose and dignity, and that fail to attractively display the flowers in the borders, or to do aught else than distract your attention from the beauties with which nature struggles to fill the beds, and to rivet it on their own inherent ugliness. And, as I have said before, there is no relation to architecture in such treatment of a garden, or to nature either.

For the laws of nature work as surely through man's instinct of art as they do through any of its processes; a line design that is discordant with the laws of art is offensive to the artistic susceptibilities of the mind, and in that respect is unnatural; and this wriggling path in a garden and the other methods of the landscape-gardener in no way accord with the laws of art, and are consequently unnatural in every sense of the word. There are hard and fast rules of first principles, of construction, of proportion and curvature, underlying the methods by which all bodies or figures, be they a number of garden beds, tiles in a pavement, or threads in a fabric, are arranged in juxtaposition so as to present a gratifying result as one

uniform whole. And these principles are as necessary in their application to the art of garden design as to anything that is most apparent.

Prior to something less than two centuries ago men apparently did all these things without knowing precisely why or how they did them. They appear to have been done by rote, by instinct; but nowadays we seem to have eaten too freely of the tree of knowledge, we have learned what good and evil in art are; and unless we apply to our work the plummet and rule of systematized and tested traditional principles of art, we seem to go astray, and shall find that it will not pass muster in the generations to come.

Art in a garden is not opposed to nature in a combative sense; it is the vehicle in which man's attribute of the Deity, his creative power, fashions the materials of nature after the model of his own mind; it is the medium through which he is able to play at being a god himself; and by the aid of this power he has wrought, and put his soul into, many wonderful works on the face of nature, and works that have added to the magnificence of nature; but the moment he tries to make things as nature makes them, he abandons the exercise of his own higher powers, and merely proclaims his own folly.

To return to the consideration of the garden, it should first of all be a part of one general scheme with the house; then its individual parts should be uniform, as is the case in the building and its details. De Caux, the architect who designed and laid out the gardens at Wilton House for the Earl of Pembroke, early in the seventeenth century, made twenty-six copper plates to illustrate his design in detail; and in all the more important work of this and earlier dates, there seems little doubt that the architect, or rather architect-builder, as he usually was, designed the house as well as the grounds; and with their designs they supplied much detail, by which means the uniformity was maintained throughout the house and its garden. In the case of a large garden it must have its parts, or plots, properly divided off from one another, to give shelter and seclusion, and the idea of enclosure; and these blocks should be rectangular, with the greater formality in those next the house; and this principle may be accepted as a guiding rule for both large and small gardens. For the step from outside nature into a beautifully planned and well-kept garden should be manifest immediately, but its choicest prospects should not be thrown into the sight of the casual visitor and unpledged courage; let there be concealed beauties in it to be sought for, and prized the more for the finding; beauties that are not open to the view of the uninvited, where one may go

"In that sweet mood where pleasure loves to pay
Tribute to ease."

Seclusion is one of the greatest charms in a garden, and it is only to be obtained by its subdivision into parts. You may divide it by the trim and stately hedge, which shall be thick enough to cut recesses in it for a seat here and there if you so fancy. "Little low hedges round like wells, with some pretty pyramids, I like well, and in some places fair columns upon frames of carpenter work," and you may add a cut peacock or so among the pyramids, if you will, that their weird outline may, alike, add to the solitude of a moonlight reverie and the merry moods of the morning sunshine; or you may divide the parts of the garden with walls, and form terraces with steps in infinite variety of design. For there is no stronger link between the house and its garden than walls, steps, garden houses and other architectural accessories, all of which should be of the same character as the house, in style and material, and in quality of workmanship. The walls should not be built of rustic fashion unless the house is; it is as necessary to build them well as it is the walls of the house. Brickwork makes good color against the green, but there should be no undue striving for too smooth a face and regular a color, in Melbourne at any rate, because our hard-pressed bricks are very little modified by the action of the weather. The light-color, softer bricks one gets in the country gather much finer color, as you may sometimes see in the older country wayside inns, where reds, yellows and browns mingle in exquisite blending, and with green creepers make the most charming effects.

The use of walls for gardening in Australia is unhappily very rare; our public gardens, as far as I know, have none, and there is no finer effect in garden design than the well-ordered terrace-wall, with fine flights of steps and garden houses at its ends. There are men in Australia who might build terrace-walls of brick or stone, as fine as those in the Old World, with half the money they fool away on horse-racing; and horse-racing is "but nothing to the true pleasure of a garden." And terrace-walls, sun-dials and garden houses, if well built, cost nothing to maintain either; in fact, the paths and beds are better sheltered and more easily kept with enclosing walls than in any other way. The walls and steps and other architectural adornments of a garden are the tendrils by which it clings to the house: they stand as peace-makers between the living things and the building, for the ivy, the musk rose, and the honeysuckle twine themselves about their stones. They are the lodestone by which the building draws the garden to itself, and the elements in which the unifying characteristics of architectural style may be most readily expressed.

The great terrace wall which Le Notre built at St. Germain-en-Laye, is a mile and a half long, but many a garden is made beautiful by such walls of a very limited number of feet in length. And most garden architecture may be built advantageously in a small way, and very economically, too, when occasion requires, as it nearly

always does. For instance, when the building is of a more or less rustic, or country, character, thatch or shingle may be sometimes used to cover the summer-house or boundary walls, or both, against which an outside background of trees makes a most picturesque and homely effect. One of the reasons we are so devoid of interesting and permanent features in our gardens is that we want everything done in so grand and, in many cases, ostentatious a manner. There are almost innumerable houses that would have made much more refined and complete homes, if the money spent in their erection had been better distributed over house and garden; for as a rule, a man wishing to build starts with spending on his bare house what his total outlay should be, with the result that in the end there is nothing left for the garden at all, and where the boundary walls should be, he erects fences just good enough to keep the cattle out; and trees are planted where the terrace-walls should be, which makes it harder to get the garden into trim ever after.

There are many details about a garden that we may show a sympathetic feeling in, as, for instance, in the entrance gates and gates that may be needed to divide it into different parts. For gates no material equals wrought-iron; cast-iron being brittle must be made heavy to withstand the jarring, and so it is unwieldy and unsuitable, and the repetition of design that we get in it makes it wearisome. Of whatever materials the gates may be they should be in accord with the enclosing walls or fences. They are the most unsightly incongruities in many of our outlying suburbs, where you may see gigantic cast-iron gates and pillars, the vulgarity of which is added to by quantities of gilt paint or gold leaf, standing in the midst of the commonest description of wood fencing; and, indeed, you may see the same thing on our country roads, where enormous wood or cumbersome cast-iron gates, and more enormous gate pillars, are set in the ordinary post-and-rail fence; or, what is worse, in the fence composed of droppers and barbed wire.

Drinking-vessels for birds and suitable shrubs and trees for them to build in, attract the thrush and other songsters, which, happily, are increasing in number in our gardens, where they often sit on the highest branch of a lofty tree, and sing the evening out, or the morning in.

"... Is it night or day yet?
Somewhere the birds seem singing still,
Though scarcely now the sun has set."

And as to trees! In the design of a garden it is most important that no trees of the larger kind be planted within the garden proper; or be planted at all, for that matter, except with the most careful consideration as to their ultimate growth. The value of trees, both for effective beauty and for shade and shelter, is inestimable, but their being planted thoughtlessly has ruined gardens innumerable, and their eventual removal is a cause of great pain when it at last becomes a necessity.

As to the dimensions of a garden, it needs by no means be enormously large; some of the most delightful effects are produced in cottage-gardening, and a garden of the moderate dimensions that are possible on a fair-sized suburban site may be of the most delightful interest and of "the greatest refreshment to the spirits of man."

The plan of "The Orchard" at Harrow, by Arnold B. Mitchell (published in the *Studio* for March, 1903), is an excellent example of what can be done in garden design on a small site. The total area of land is about one-third of an acre, yet the designer has a house of considerable size on it with fine rooms—the drawing-room measuring over 40 feet into the bay—and a garden of most varied and extensive interest, which, as may be seen by reference to the plan, is divided by a cut hedge into enclosed gardens for annuals, perennials and other flowers. There is also a pergola and roseray, a small lawn and some fruit trees. It is an excellent example of what can be done by thoughtful design on a small piece of land.

Of different types of gardens there are many, all having relation to the architecture of which they form the setting, and in building a house in any style or period, the garden should follow the traditional custom also.

The Dutch house should have its small patches of very closely decorated spaces after the Dutch style of garden; the Italian house its flight of steps, mighty walls and cascades of water in the Italian type; and the Japanese needs its magic stones, its manufactured hills, and dwarf trees and shrubs, all in its own especial character; and some day, if we can get an architectural style of our own, we shall also have an Australian type of garden, which, though founded on the English type, will have its own peculiarities arising out of the use of our indigenous ligneous flora—of which we have a goodly number and some of great beauty—and the drier, warmer climate in which we may—with comparatively little care—have a wealth of flowers in our gardens that would make any old English gardener green with envy.

It is foolish to think an Australian garden must be wild because the Australian bush is wild! Far the reverse! There is no reason on earth why we should stultify the art of gardening because our paddocks are full of dead trees. The wild weirdness of our bush country, the vast expanse of our plains, and the romantic splendor of our ranges, have more power to delight the eye and fill the soul with wonder when it has become familiar with the extreme opposite—a finely kept garden. And I am anxious that it should not be thought that because I despise the weak and maudlin methods of the landscape-gardeners that therefore I despise nature. On the contrary, I hold that a garden can in no way satisfy man's craving

for the wildness of nature; in times of extreme sorrow or peril, the garden with its charms and beauties is comfortless, the very flowers seem to mock at one's sorrow; such moods can find sympathy in wild nature only, where there is no sound, save the sigh of the wind in the trees, or the thundering of the ocean billows! Nothing that man has ever made or ever will make can estrange him from his love of nature or satisfy all his moods. "Art's sounding line will never fathom human nature's emotional depths." Nevertheless it would seem that the food of that love which worships nature is art, as we see that those who hold nature in the highest esteem are painters and poets nursed in the lap of art; and it were as reasonable to expect a great painter to lose his love of nature through painting ideal pictures of it, as to expect that catastrophe to happen to one whose inclinations lead him into the making of a fine garden.

In concluding let me say that I hope some will be convinced and others confirmed in the belief that a garden is a product of man's art—that it is a human thing, as a house is, and that though it need not necessarily be stiff or over formal, yet that it must be designed in sympathy with the architecture it surrounds, that it must have the mark of human intelligence upon it. And as you come back again from a lengthened stay on the Snowy River, and your eye catches the outline of a clipped and stately hedge, it tells you that you are nearing home; and when you see a shape of ideal beauty cut in that same hedge, it brings to your mind that in the midst of nature there is something that is above it all, and that that something is the soul of man. And as you draw nearer and come within the garden and see the dance of the daffodils at the side of the lake, you will say with Wordsworth,

"For oft when on my couch I lie,
In vacant or in pensive mood,
They flash upon that inward eye
Which is the bliss of solitude,
And then my heart with pleasure fills,
And dances with the daffodils."

ACTION OF SUNLIGHT ON GLASS.

APROPOS of the perennial interest that is excited by the violet-tinted window-glass in some of the old houses on Beacon Hill, the *Boston Transcript* republishes the following interesting paper:¹

"When God made the light, He created one of the most ethereal and yet most powerful of the elements and forces of nature.

"It will be my pleasure to show how the sun, its great fountain and source, while it paints so beautifully and wonderfully the birds, the insects and the flowers, can in some measure also delicately tint the wares upon our tables, the glass in our houses, and the windows of the storied cathedrals of the world.

"My subject is the action of sunlight in changing the color of glass; and I shall give a brief account of my humble experiments, commenced in 1863, and continued to the present day.

"My experiments have been carried on chiefly upon the roof and upper window-sills of my house in Boston, in a position exposed to the full force of the sun's rays during the greater portion of every day, being protected by cover only in the event of snow storms. My experiments showed interesting results. The change in color in some specimens is developed slowly, while in others it commences after a few hours of exposure in a summer day. In some sensitive kinds I have witnessed a perceptible change in a single hour of sunlight exposure upon the top of a post in a country garden, at noon-time, on a clear and hot day of August.

"The glass plates exposed vary from 4" x 2" (my usual size) to 4" x 18" and from one-sixteenth of an inch to an inch in thickness. I have in my cabinet more than a thousand specimens showing the effect of exposure, from a single hour to thirteen years.

"I have thus exposed and tested some eighty kinds of colorless glass of American, English, French, German and Belgian manufacture, embracing rough and polished plate, crown and sheet window-glass, flint and crown optical-glass, glassware and glass in the rough metal. I have also exposed ground and opal-glass, and some seventy kinds of colored sheet and rolled cathedral-glass, including not only the main spectral colors—red, orange, yellow, green, blue and violet—but a variety of intermediate tints, such as brown, olive, amethyst, flesh color, etc.

"Various are the tints of the original colorless specimens, and equally various are those which are produced by sunlight exposure.

"The nomenclature of different observers might also vary. I cannot recapitulate the long list from my journal, but would name as a general classification of the results produced the following changes of color:—

- "1. From white to yellowish.
- "2. From greenish to yellowish-green.
- "3. From brownish-yellow and greenish tints to various tints of purple.
- "4. From greenish-white to bluish.
- "5. From bluish and other tints to darker tints of the same colors.

"Every specimen of colorless glass exposed for ten years has changed in color or tint, except some white flint-glass, such as is used

¹ A paper by Thomas Gaffield, presented before the Chemical Section of the American Association for the Advancement of Science in Boston, Aug. 27, 1880.

for fine glassware and optical glass. The optical glasses exposed, with the exception of two specimens of crown glass, containing no oxides of lead, which became of a yellowish hue, changed only in a very slight degree in tint, even after more than ten years of exposure, and not enough to be witnessed by ordinary observers, or seriously to interfere with their practical value and use.

"The most tangible illustration of change in colorless glass, as observed in similar windows in London by Faraday in 1823, can be witnessed in the purple-tinted panes of some of the houses on Beacon Street in Boston, which were built fifty or sixty years ago. Some of the present owners and occupants formerly supposed that they were imported of the same color which we now observe, as an intentional decoration of their pleasant homes; and they were quite sceptical when I first published the statement that they were painted by the magic pencil of the sun. They have generally been convinced by the testimony of experiments which speak for themselves.

"The result of these experiments led me to believe that they might furnish a key to solve interesting questions concerning the alleged superiority of the old cathedral windows; and I made a trip to Europe in 1872 to visit these interesting edifices, and, if possible, obtain some of the old glass. By removing the protecting putty from the edges of purple-tinted panes in Beacon Street, one can observe the original color of the glass. I hoped to do the same with fragments from the old cathedrals. But the protecting edges of the lead divisions were so narrow, being generally not over one-eighth or one-sixteenth of an inch, that they afforded no chance for a similar observation. Obtaining specimens from Strasburg and elsewhere, I applied also the interesting heat test by dividing some of them in two pieces, and exposing one to the heat of a glass-stainer's kiln. But while some ordinary and expected effects were produced, such as the deepening of some red and yellow tints by a second firing, no change was produced in the pot-metal colors by heat which indicated any previous change by sunlight, except in the few small purple and flesh-colored specimens. The colorless body of the flashed and enamelled glasses, with one exception of a slight lightening of the tint, was unchanged, being generally of so dark a color originally that it seems no change could be effected by light or heat. So far as these purple and flesh colors, and other easily changing tints of pot-metal colors, were used in the old windows, and as the same cause must always produce the same effect, we can certainly say that they must have been changed in color or tint by their centuries of exposure, and that we cannot see to-day the glass as it was when it came from the artists' studios and the glass factories of the mediæval ages. And so far we may transfer some of our praise from the old artists in glass to the silent but wonderful pencil of the sun. But we must not make too much of this point, as an examination of many cathedrals in England and on the continent convinced me that the proportion of these peculiarly sensitive tints of flesh and light purple colors in most of their windows were small, being confined chiefly to the face and limbs of the Madonnas and saints, and many of these being produced in enamelled or flashed glass rather than pot-metal.

"And now what the wonderful alchemy of the sunlight is, and what the methods of its operations, are questions on which various opinions have been given by glassmakers and scientific men, but which only a careful consideration and comparison of the observations and theories of many practical and scientific observers can accurately decide. Some have attributed one or another of these colorations to the presence of oxide-of-iron, some to arsenic, and some to carbon or sulphates in the constituent materials of the glass.

"The greater number think oxide of manganese, singular as it may seem, used as a decolorizer, to be the great colorist in all of these changes. In many colored and colorless glasses, and especially in those which assume after exposure any tint of purple or flesh color, it undoubtedly plays a very important part. But, in some experiments with glass said to contain no manganese, decided changes of color from greenish to yellow have been produced. Perhaps the question cannot be accurately solved until some glass manufacturer or lover of science and scientific truth shall make, with great care and for this special purpose, a series of colored and colorless glasses, which shall be exposed for months and years to the influence of sunlight. Knowing the exact constituents of each specimen, a good foundation would be laid for a thorough scientific investigation of the subject. This has never yet been done; and, in the absence of such knowledge, we can only theorize upon the results which we witness.

"If this coloring power of the sunbeams has not been generally known, it is because it cannot readily be seen by ordinary observers, except in such as the purple-tinted windows of Beacon Street; and even then it may sometimes require the background of a light-colored curtain.

"The discovery of the defect is an annoyance to both consumers and glassmakers. When our Beacon-Street friends could no longer obtain similar glass to replace broken panes, the insertion of colorless ones gave their windows the interesting checker-board appearance which we witness to-day. When the glassmakers found the defect a matter of scientific observation and experiment, and their results published at home and abroad, they remedied the difficulty, in a measure, by using purer materials, or reducing the proportion of manganese in their "batch," or giving up its use entirely, preferring to have the glass assume its natural and more permanent color, even if it be a little greenish or bluish, rather than by "doctoring" the

mixture, to adopt the glassmakers' term for the use of manganese, to have it light colored to-day and easily affected by the sunlight of tomorrow.

"This improvement is of special importance to photographers, who, in all operations requiring short exposures, and all the light possible to obtain, would avoid the use of any glass in their sunlights which, after a few months or years of exposure, will be robbed of a great proportion of its power to transmit the chemical influence of sunlight by a change to a yellow or purple tint, which in time might cut off almost as much actinic effect as if it had been ground or enamelled on one of its surfaces.

"I have made some photographic experiments to show this deteriorating effect, by exposing sensitive paper under glasses of the original colors, and those of the same kind changed by sunlight exposure, and witnessing the perceptibly different shades of darkening produced. This action of sunlight must not be confounded with that called "rust," or "stain," which is occasioned in some glasses having an excess of alkali in their composition, by exposure to the atmosphere, and manifests itself in two ways: First, by a disintegration and roughening of the surface, sometimes producing all the effects of ground glass; and, secondly, by an efflorescence and apparent formation of an infinitesimal coating of oxide upon the surface, on which the play of the sun's rays produces all the colors of the rainbow, as with the action of light on the infinitesimal grooves of mother-of-pearl. This is simply surface action, whereas the action of sunlight permeates the whole body of the glass wherever the rays directly strike it.

"I might refer to many other points in connection with my subject, but my time will not permit; and I hasten to exhibit the results of my experiments, asking my hearers, who are so much better versed in scientific studies than myself, to give me their light in ascertaining the causes and exact operations of this interesting power of the sun's rays to paint the products of art, as they do so beautifully and wonderfully the works of nature on the mountain, in the forest and field.

"The large number of specimens of colored and colorless glasses here exhibited show the coloring effect of exposure to sunlight.

"A tangible illustration of this subject is found in the purple-tinted windows of some of the Beacon-Street houses, of which the specimens exhibited show the original color and the changes produced by sunlight exposures varying from one day to fifty years. These examples also show how this action can be turned to interesting account in impressing upon colored and colorless glasses the forms of leaves and ferns, and in printing inscriptions and mottoes. It is a species of photographic work with sensitive glass instead of sensitive paper, the sun showing itself a most excellent printer and developer, and indeed, the only true photographer in colors."

BOOKS PAPERS

A DELIGHTFUL story of her own life, by a charming woman, who lived among the principal actors in the most eventful times, is the *Memoirs of Madame Vigée Lebrun*.¹ Every one knows something of Madame Lebrun's portraits, several of which have been reproduced in countless thousands by every mode of multiplication; but few people know as much as they might of the frank simplicity, the wit and delicate sentiment, of the artist herself, and interesting as is her story of the people and time of the Revolution, still more interesting is the picture which it unconsciously gives of the one who relates it.

Madame Lebrun was the daughter of an artist of small reputation, but, according to her account of him, amiable and popular. He worked in pastels, and, as she says, allowed her to "mess with his crayons" as much as she liked. Naturally, she soon learned to use them with some cleverness, and, at her convent school, she spent much time in disgrace on account of her misplaced exercise of her talents. At eleven the little Louise Vigée left her convent school and lived at home, playing with her pastels and enjoying the society of the artists who frequented the house. A year later her father died, and it was as a distraction from her grief that, on the advice of one of his friends, she took up painting again seriously, and executed several portraits, at the same time taking drawing lessons, and studying the pictures in the Louvre and Luxembourg galleries. Her father left no property so that the work of the child of fourteen was the sole support of the family. Fortunately, her cleverness attracted the attention of Joseph Vernet, who made influential friends for her, and brought her commissions. Among these was one for a portrait of Count Schouvaloff, Grand Chamberlain to the King, which attracted much attention at Court. Her mother had married again, her second husband being a jeweller, who lived in the Rue Saint-Honoré, in rooms overlooking the garden of the Palais Royal, then the residence of the Duke of Orleans, "Philippe Egalité." The princesses of the house of Orleans, walking in the garden, observed the famous little artist with much interest, and the Duchess of Chartres soon sent for her to paint her portrait. It is easy to see that the affectionate simplicity of the young girl pleased her royal patrons, for, on the recommendation of the Duchess of Chartres, the

Countess of Brionne and her daughter, the Princess of Lorraine, called upon the little painter, and were followed by all of the great ladies of the Court.

At sixteen, Louise Vigée was the talk of Paris, welcomed everywhere in the highest society, although, as she says, she was only a humble listener to the conversation of the Cardinal de Rohan, the Duke of Lauzun, the Duke of Choiseul and the other brilliant wits of the Court of Louis XVI.

A young girl so talented and so popular was sure to attract suitors, but Mademoiselle Vigée, who now earned a considerable income with her brush, was not disposed to marry. She was commissioned to paint the portraits of various eligible young gentlemen who, as she suspected, thought that their sittings would afford them a favorable opportunity for laying siege to her affections. If they had any views of this kind, they were ingeniously thwarted. The little artist took care to select for them a pose in which the face was nearly in profile, and, as soon as she detected a tendency in the subject to turn his gaze in her direction, she would gently observe, "I am painting the eyes now"; and the sitter would be obliged to resume his contemplation of vacancy.

We have no idea of forestalling the pleasure of the reader by giving a synopsis of the incidents. On the contrary, we hope that the suggestion of the character of its author, so thoroughly French in her quickness, tact and modesty, may increase his desire to pursue her story further. It soon became an adventurous, as well as a sad one. Her most intimate friend, as a young girl, was a certain Mademoiselle Boquet, with whom she had taken drawing lessons. Mademoiselle Boquet became famous for her beauty and goodness, as well as her talents, and, on her marriage with M. Filleul, Queen Marie Antoinette, as a mark of favor, made her Gatekeeper of the Castle of La Muette. She was, like many other intellectual Frenchwomen, hopeful of a happy result from the revolutionary discussions of a later day, and remained in what she supposed to be her safe retreat after the arrest of the King. Meanwhile, Madame Chalgrin, a daughter of Joseph Vernet, and the intimate friend of both Louise Vigée and Madame Filleul, was invited by the latter to have her daughter's wedding take place at La Muette, as being less disturbed than Paris. Of course, no one thought of festivities at that period, but the day after the wedding, both Madame Filleul and Madame Chalgrin were arrested, brought before the Revolutionary Tribunal, on the charge of having "wasted the candles of the nation," and, a few days later, were both guillotined.

Louise Vigée, who had married a picture-dealer named Lebrun, of whom she saw very little, soon saw enough of the Revolution, and made her escape to Italy on the very day that the King and Queen were brought from Versailles to Paris, taking with her the little daughter whose picture has charmed so many thousands of visitors to the Louvre, and who was destined to be the cause of many of the sorrows which the *Memoirs* relate so unaffectedly.

ONE of the most useful books for architects² that has been published for many years appears under a rather unattractive name.

Although it is true that architects and engineers have very many interests in common, they keep, in this country, pretty closely within their own provinces, and the books published for one profession rarely have a large circulation in the other. In the case of the present work, this is a real misfortune to architects, who are likely, thinking it to be intended exclusively for engineers, to pass by a volume which is filled with useful suggestions for nearly every kind of building work. After giving a brief view of the usual type of steel mill structure, which is not a complicated one, Professor Ketchum plunges into a mass of useful information, conveniently arranged, and illustrated by beautiful drawings, which may be commended to every architectural draughtsman as models of what working drawings should be. Naturally, a considerable space is given to the calculation of stresses, both algebraically and graphically, but the subject is treated with so much clearness that the reader familiar with the subject will find pleasure in the method of presentation, and some cases are added, such as those of stresses in portals, which will be new to most architects. The discussion of stresses, and of the designing of steel structures to resist them, having been concluded, many chapters of most useful detail follow, including descriptions of the properties of an immense variety of materials for walling, roofing, painting, glazing, and so on, with estimates of their cost, and of the making of shop drawings, and the designing of window-frames and other details. It is a little curious to see the cost of drawings for steel-frame structures estimated at so much per ton; but we are told that "details for church and court-house roofs having hips and valleys cost from six to eight dollars a ton," while a contract was made for detail-drawings of certain work at two dollars and six cents per ton, and this price "netted the contractor a fair profit."

We will give one more example of the useful information contained in the book, not only to show the range of subject and treatment, but to help in disseminating the knowledge of a fact which should be generally remembered. It seems that observation has shown that where a wooden floor on wooden sleepers is laid over a base of Portland-cement concrete, the concrete should first be treated

¹"*The Design of Steel Mill Buildings, and the Calculation of Stresses in Framed Structures.*" By Milo S. Ketchum, C.E., Assistant Professor of Civil Engineering, University of Illinois. New York: The Engineering News Publishing Co. 1903.

²"*Memoirs of Madame Vigée Lebrun.*" Translated and edited by Lionel Strachey. Doubleday, Page & Co., New York. 1903. Price \$2.75.

to a wash of hot tar. If this precaution is neglected, the sleepers and the flooring over them will soon rot. We have several times, in our own practice, had the sleepers of floors laid over concrete painted with tar before putting them in place, rather from a vague suspicion that the contact of concrete was not good for them than from any definite knowledge; and the result seemed to justify the precaution; but this is the first time, so far as we recollect, that the subject has been considered in an authoritative engineering text-book. It may be observed that the tarring of the sleepers should, in most cases, be sufficient, as the flooring over them is not likely to be infected except through the medium of the sleepers; and the process is an easier one than that of spreading hot tar over cold and dusty concrete.



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

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A CLASSIC STEEPLE. MR. T. ROGERS KITSELL, ARCHITECT.

This plate is copied from the *Builder*.

ENTRANCES: THE KUNSTGEWERBE MUSEUM, FLENSBURG, PRUSSIA. K. MÜHLKE & F. VON GERLACH, ARCHITECTS: TWO PLATES.

These plates are copied from *Zeitschrift für Bauwesen*.



PILE-DRIVING IN VENICE. — Passing through the Piazza and round the corner of the ruined Library of Sansovino, after an absence from Venice of over two months, my attention was arrested by the sound of a quaint chant — all too seldom heard of late years — which told that the work to end the four lat'ons of St. Mark's had once more begun. It was the song of the *battipali* — the pile-drivers. Pile-driving is still carried on in the primitive fashion in which it was done in the early days of the republic. A heavy, iron-bound clog of wood (called a *martino*, and weighing a good deal over four hundredweight), which runs guillotine-wise between two uprights, is attached to eight or ten ropes. These pass through a strong pulley fastened to a *capra*, or tripod of three spars, above the pile that is to be driven in. Each rope is held by a man, a *battipalo*, who, at word of command, hauls it in, and at word of command lets it run through his hands, and then the massive clog comes down "thud" on the pile and drives it down. But the word of command takes the form of a song, and of an endless song, for the last line, when it comes — and that is not early, for I have nearly two hundred and fifty, and there are many others which I have not yet procured — is the one that began it, and so the round can go on indefinitely. As the song goes on one gathers reminiscences of the old Venetian wars, and sees that it has been added to at various times, as the centuries went on, each adding something of its own. It is easy to pick out the later additions, because the words, and the thoughts they express, lose both their quaint form and their religious spirit; indeed, to the latest of all, those of the thirteenth century, it is better to turn a deaf ear. Each line finishes with "eh . . ." this "eh" being a curious long-drawn-out cry, at the end of which the *martino* falls. The song begins thus. —

Let us begin, eh . . .
By praying to God, eh . . .
To entreat for, eh . . .
His holy help, eh . . .
Let us serve God, eh . . .
And maintain, eh . . .
His holy faith, eh . . .
The faith of Christ, eh . . .
The Christian faith, eh . . .
That of the Turks, eh . . .
It is pagan, eh . . .
The dog of a Turk, eh . . .
The King of the Mori,¹ eh . . .
He believes not, eh . . .
In our God, eh . . .

Various episodes of the ancient wars are introduced, and then it goes on: "God protect us from sin, from mortal sin; from people

¹ Dark men.

who wish us ill, from evil-doers, God preserve us." Then it changes: "Catherine has a golden crown, a crown of superfine gold; she bears in her arms the child Jesus. May He help us — us who are His servants. Therefore, like waves, fellows, let us give these four blows" ("quatra boti," "four blows," being a Venetian idiom to represent a large number). "Let them be strong; let them ring clear; so that they may be heard right up at the Arsenal, where they build boats, where they build ships, with which to attack, to attack the enemy, the dog of a Turk, the King of the Mori. To vanquish the Turk, to take all his treasures. . . . But what ails this pile? Beat him down, beat him down. Down through the clay and mud, beat him down, down through the clay and mud, down through the water, to join his companions. But what ails this pile, that still is above the ground? This is not a pile, it must be a column!" Then the song wanders off: "There is the Piazza of St. Mark, long and wide, and well formed. There is a church, and over the door there are four horses. They are of bronze, superfine bronze." And, after describing everything — the standards, the clock-tower, the Magi bowing before the Child, the pile-drivers begin to moralize. "In this world we are many. First served are the great ones, and afterwards the small ones, as says the Scriptures, so that the soul may feel safe, so that the soul may feel saved, and be put in a good place, in the holy place of Paradise, where make great rejoicings Messers San Marco and Luca, and Messer San Michele, who weighs all the souls. But what ails this pile? Pull, my brave fellows, pull high the 'martino.' Beat down the pile. Beat him down, beat him down, down through the water, down through the mud and clay, into the ground to make firm the foundations." — *London Globe*.

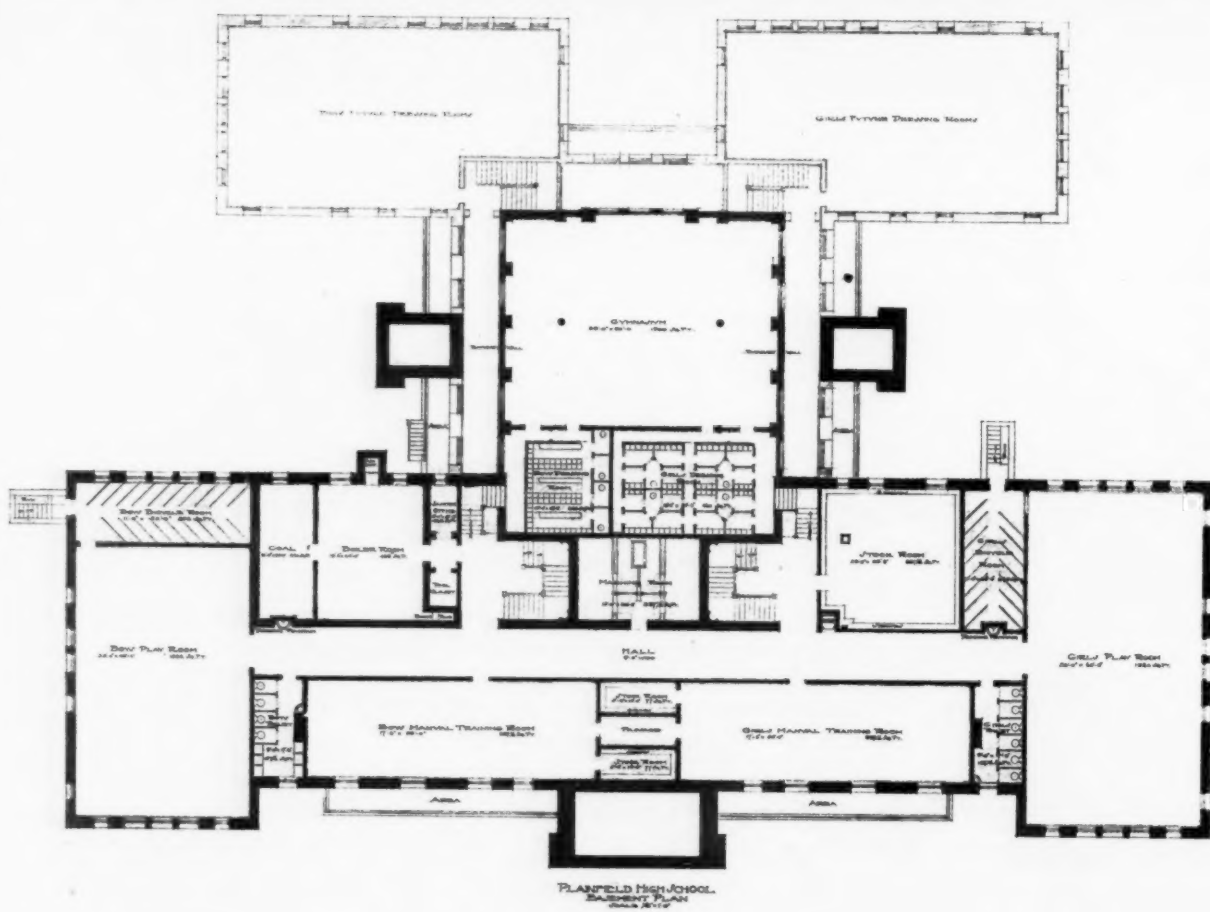
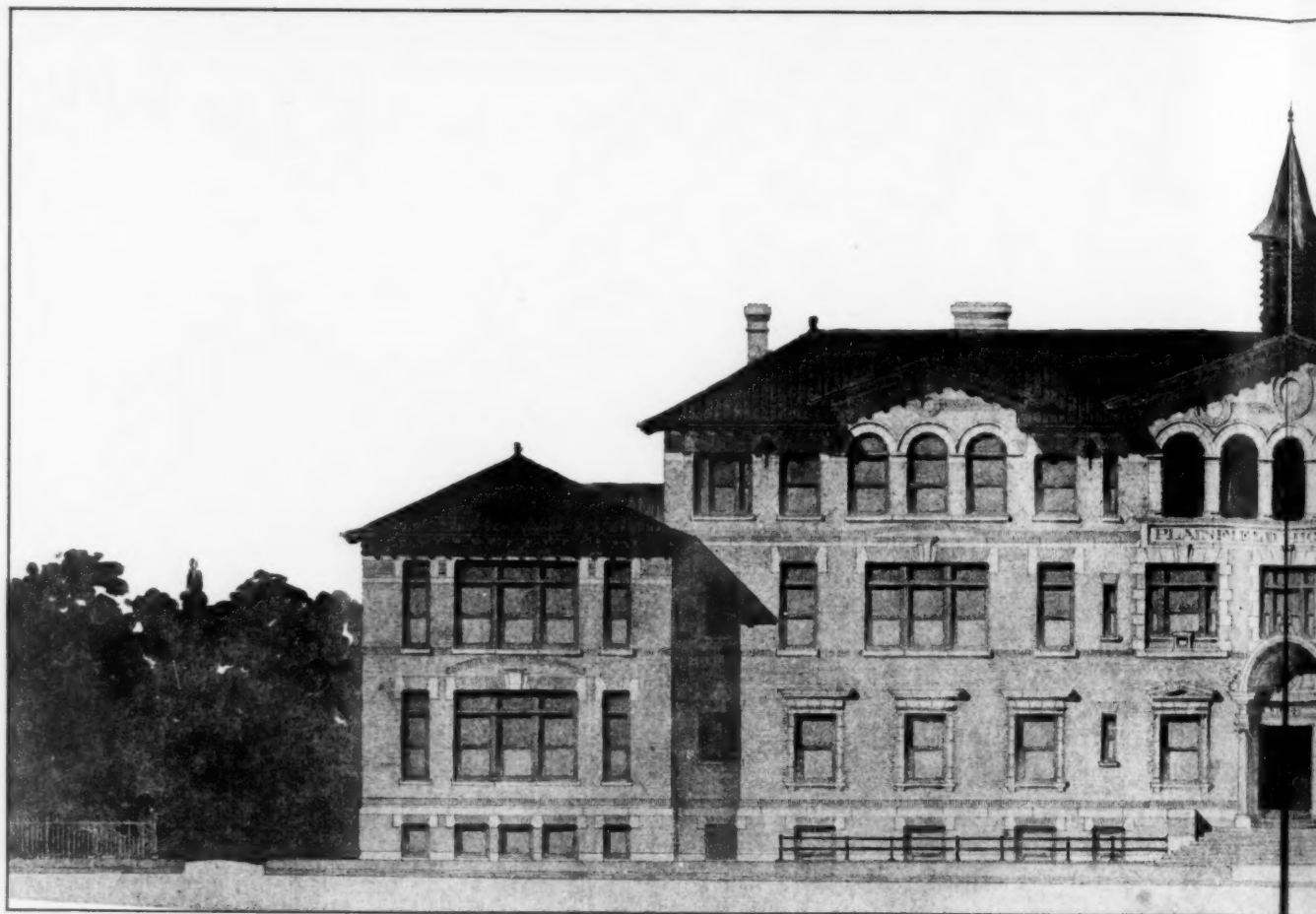
HOW THE BRITISH MUSEUM WAS STARTED. — An observer recalls the interesting circumstances of the establishment of the British Museum. The funds for the institution were raised by a lottery, which was authorized in 1753 by an act of Parliament, the Archbishop of Canterbury, the Lord Chancellor and the Speaker being the managers and trustees, each to receive £100 as an honorarium. The amount of the lottery is said to have been \$1,500,000 (£300,000), which was raised by £3 tickets, to provide £200,000 for prizes, varying in value from £10,000 to £10, and £100,000 for the purchase of the Museum's nucleus — the Sloane collections and the Harleian Library — also to provide for the acquisitions and to meet other expenses. It will be remembered that the lottery became notorious through the activities of a certain Peter Leheup, who shrewdly cornered the tickets and had them sold at a premium. Leheup was afterwards prosecuted for breach of trust, and fined £1,000, which could not have troubled him much, as his profits from the deal were £40,000. — *Harper's Weekly*.

A GRUESOME MONUMENT. — An original and at the same time distinctly gruesome monument has been designed by the Spanish sculptor, José Charnoy, for the Boston admirers of Edgar Allen Poe, and plaster casts have just been despatched from Paris for approval in America. The monument is, in itself, an architectural whole, and will not require a pedestal, as it purposes to be symbolical from the ground up. It represents two figures holding a mortuary shroud, in which the body of the poet is to be borne to its last resting-place. Just as they are in the act of lifting it up the shroud unfolds and the body rolls out, falling on the steps of the monument. The attitude of the two bearers is particularly striking. One of them looks down at the fallen corpse with a stare of hideous horror, but the other, to mark the contrast, raises its eyes in ecstasy to heaven. As an American contemporary remarks, "The idea is truly ghastly, and the artist's ambition seems to have been to outdo the weird poet himself in his weirdest conceptions." — *Stone Trades Journal*.

PERHAPS THE LARGEST SCHOOL IN THE WORLD. — A week or two ago the contract for the erection of Public School 62, in New York, which is to be the largest school in the world, was approved. The bid is \$519,049. The site for the building cost \$519,000, thus bringing up the total cost of the school to over a million. The height, six stories, exceeds that of any present school. There are to be a basement and subcellar, and in the basement will be an auditorium capable of seating 1,600. The school will be able to accommodate about 4,500 pupils. Altogether, there will be 124 classrooms. The building will be practically two schools, one for boys and the other for girls. On the sixth floor will be a gymnasium, cooking-room, workshop, two baths, lockers and seven classrooms. The exterior of the building is to be of buff and blue Indiana limestone, and the interior will be finished in oak. It will be the first school in New York to have elevators to carry the children to the upper stories. — *Boston Transcript*.

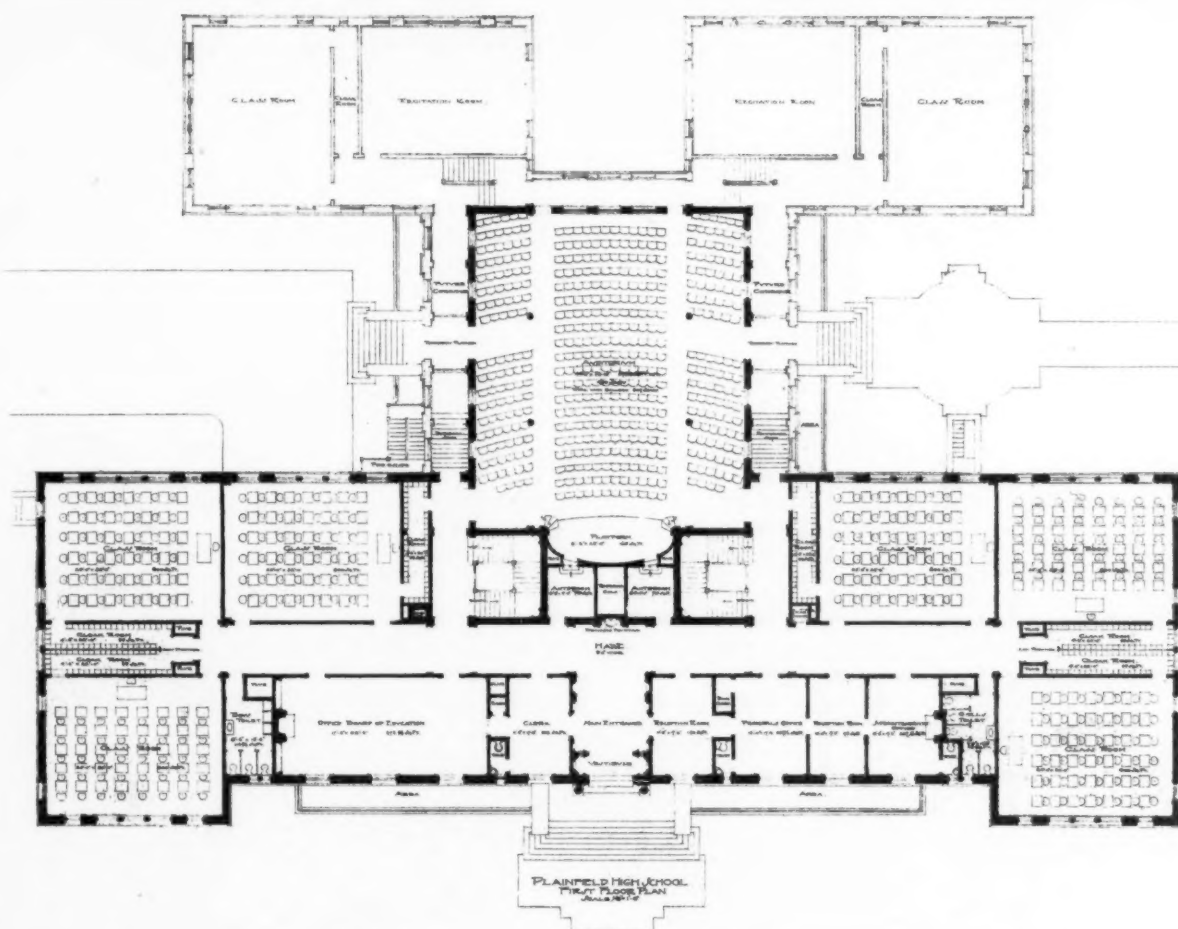
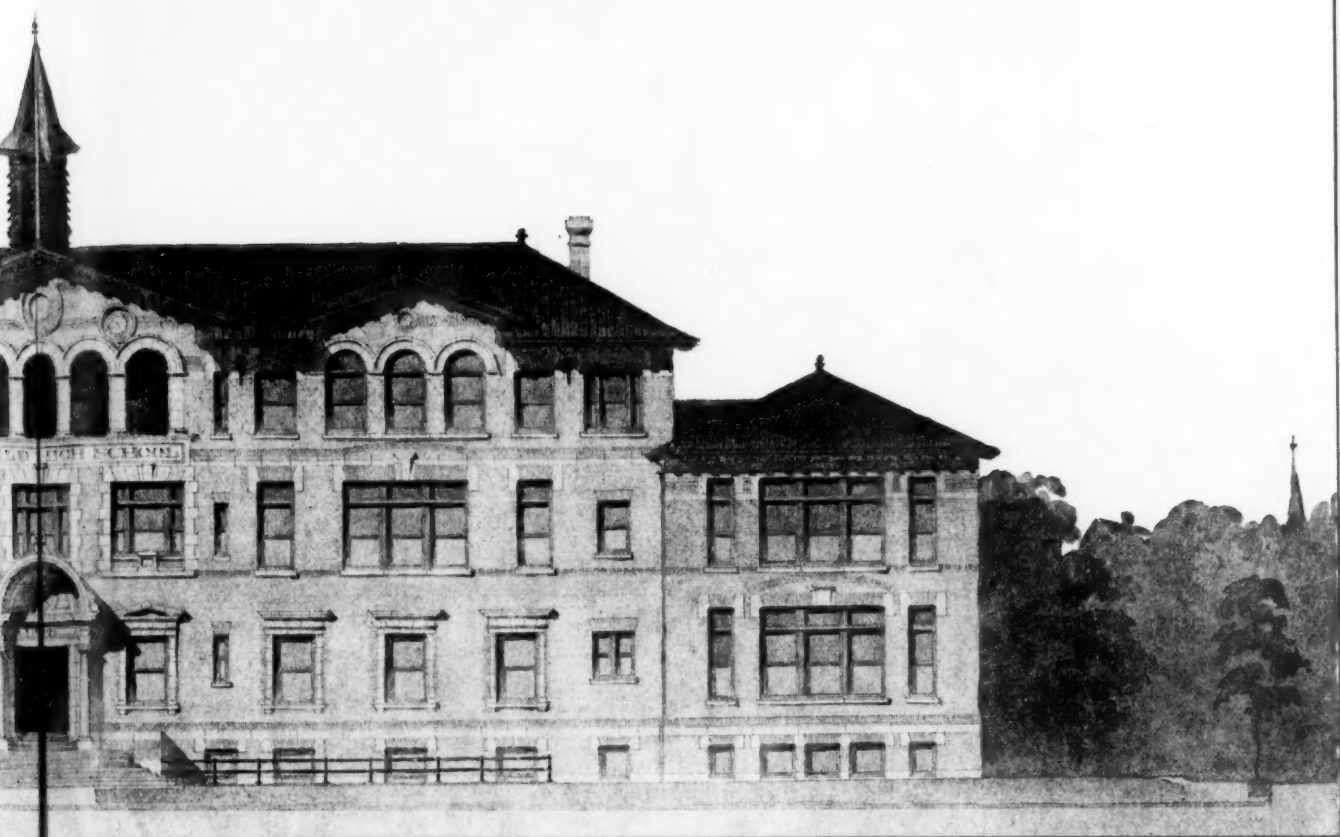
THE BIG TREE CASES. — The attempt which is being made to hold up the Government and force it to pay an extortionate price for the Calaveras and Mariposa big tree-groves is quite as reprehensible as any of these Sierra County timber land frauds. The Government was robbed in the latter cases by open violations of the entry law. It is proposed to break into the United States Treasury in the big tree cases by extravagant misrepresentations as to the value of the groves. — *San Francisco Chronicle*.

THE FIRST LONDON CREMATORY. — When Sir Henry Thompson, in the year 1874, introduced in England the suggestion of disposing of the dead by means of cremation, his idea was regarded with antipathy and met with a shudder. But the matter was kept before the public, and on October 14 the foundation stone was laid at Ilford Cemetery for the first crematorium in the vast metropolis of London. Hull, Manchester, Liverpool and Woking preceded London in the building of crematoriums. — *Exchange*.



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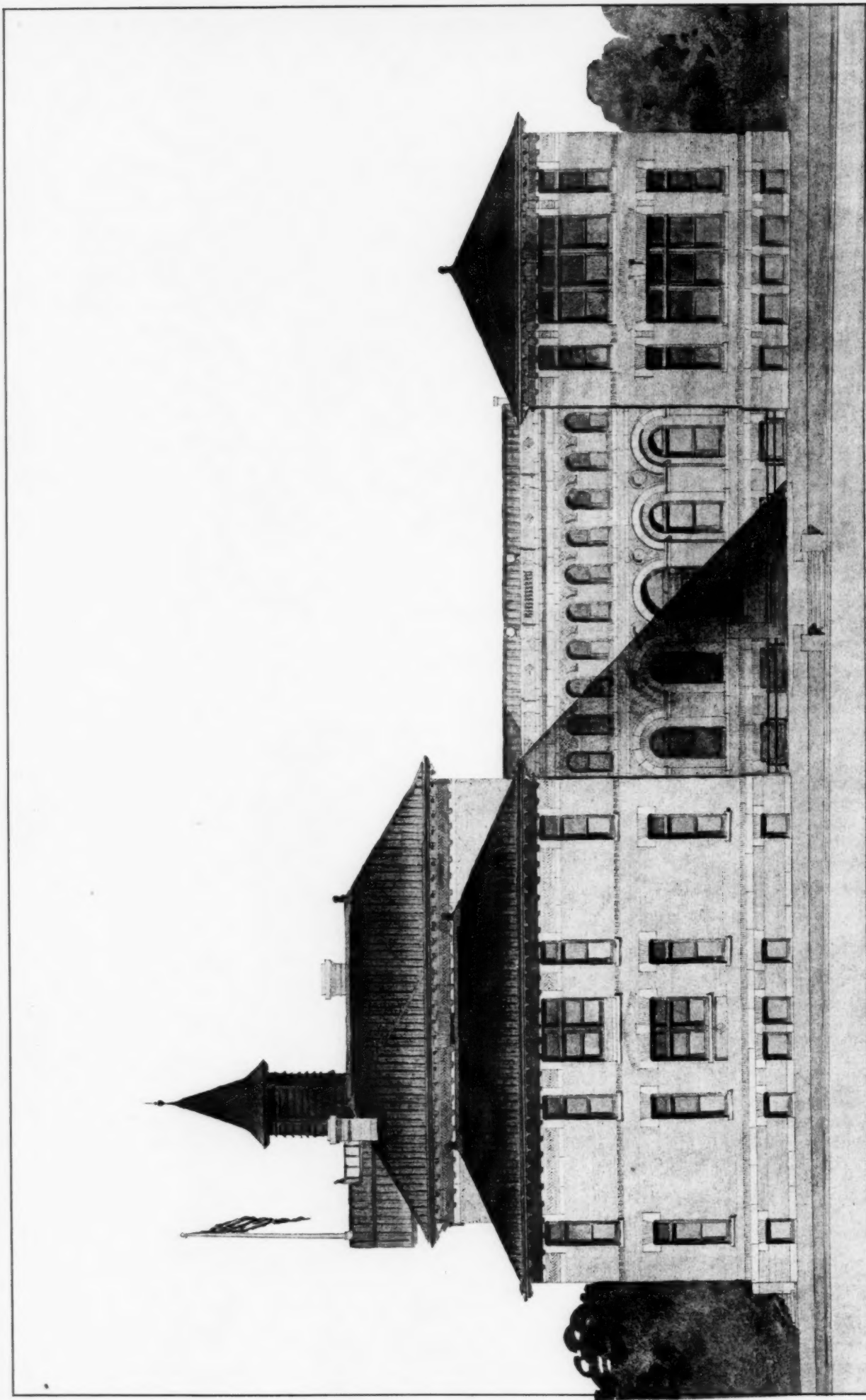
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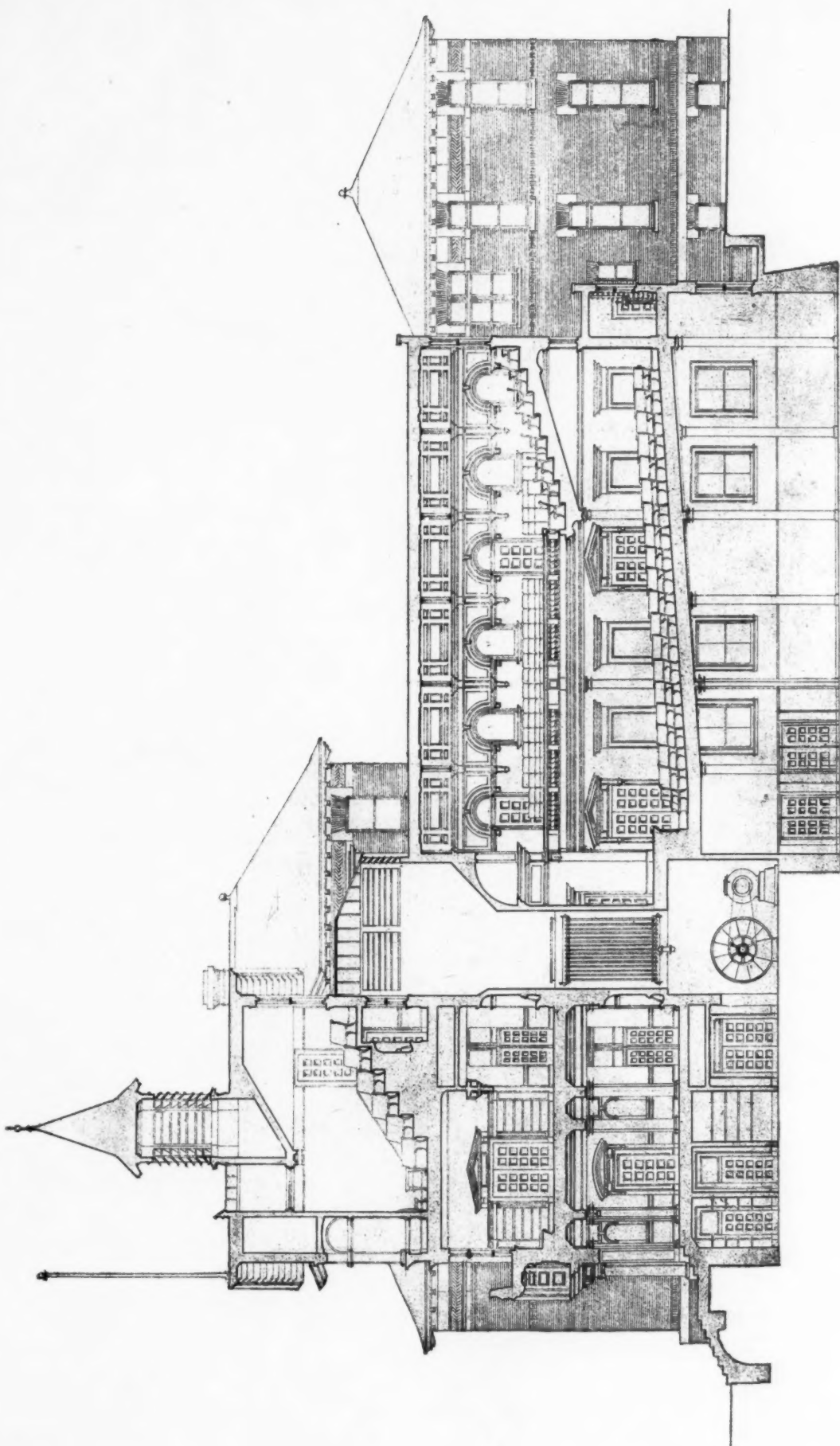


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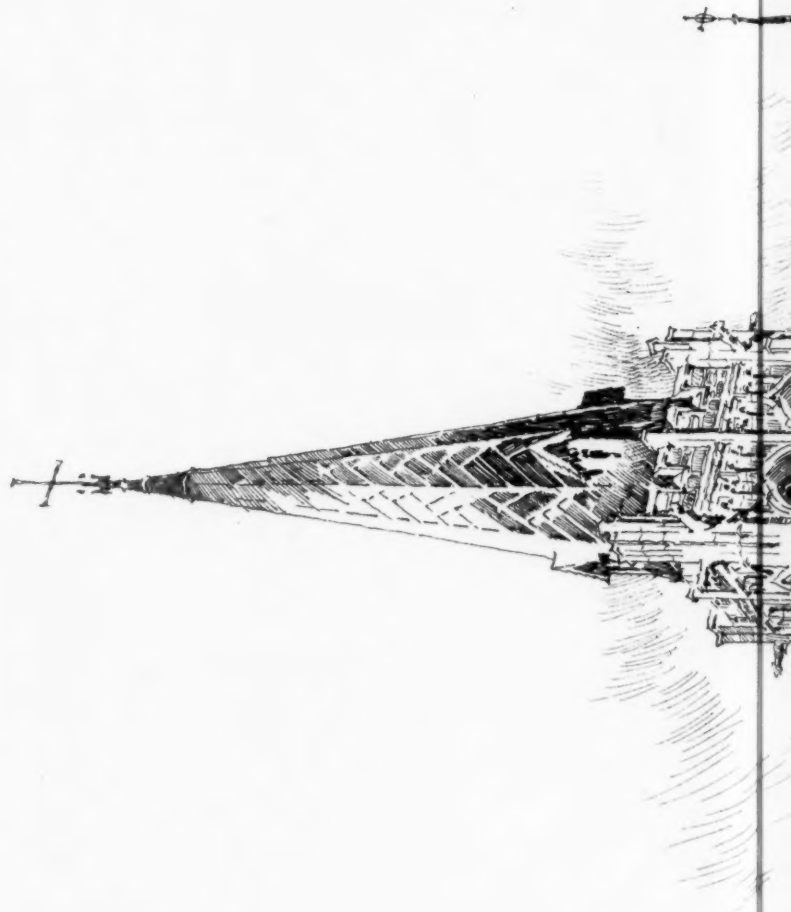
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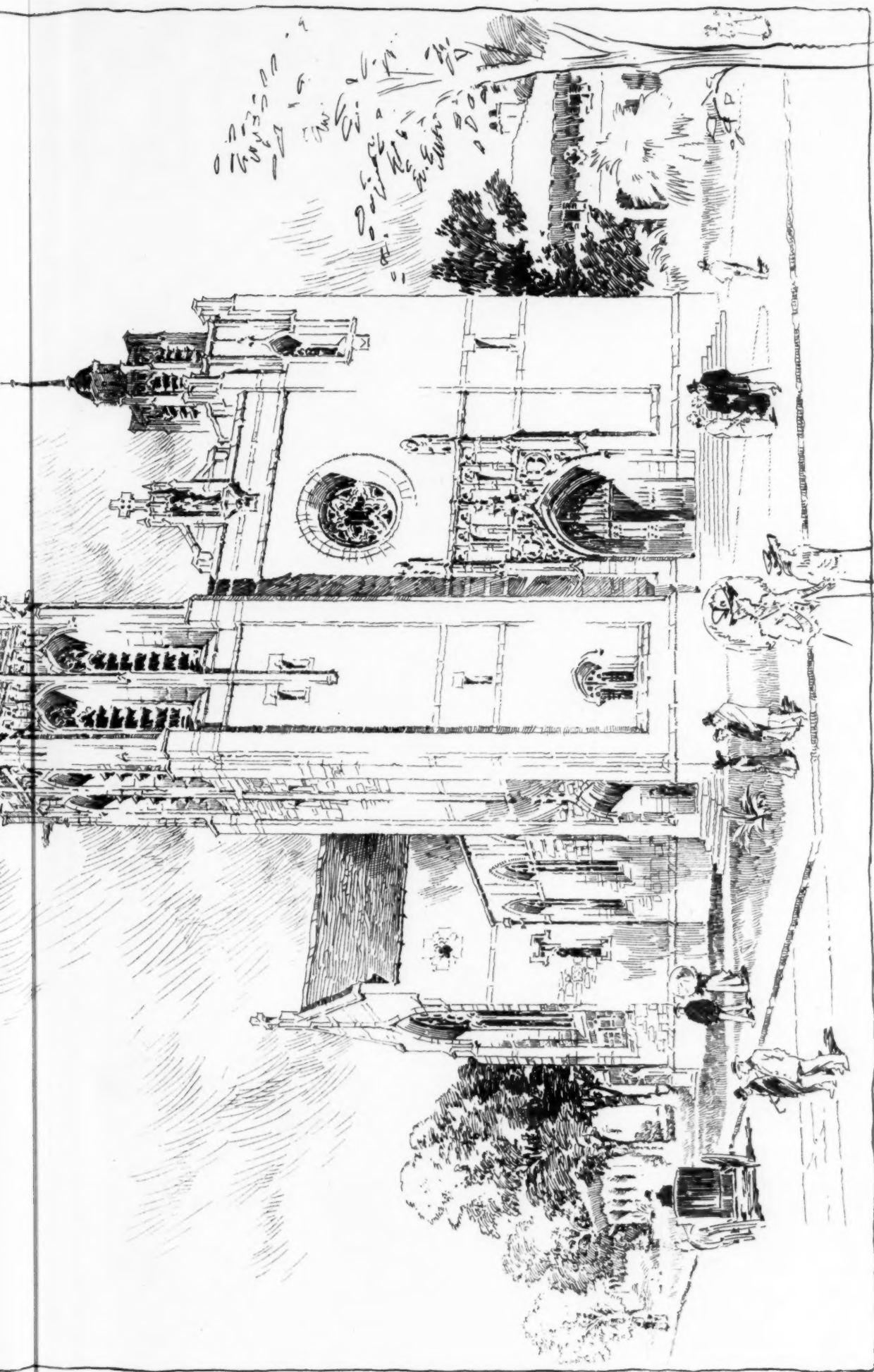
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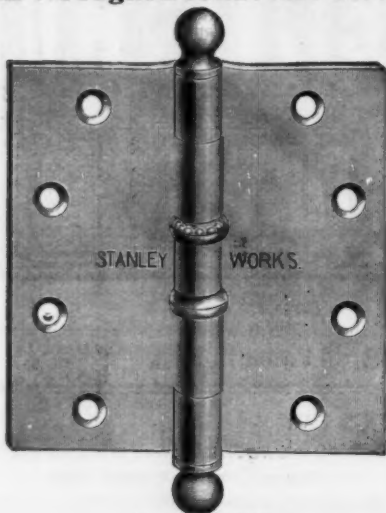
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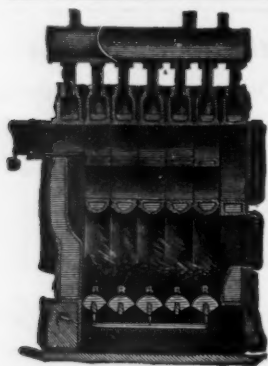
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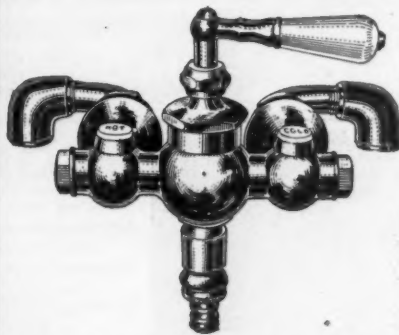
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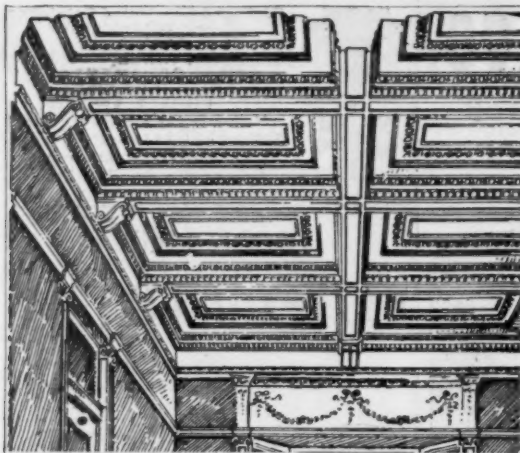
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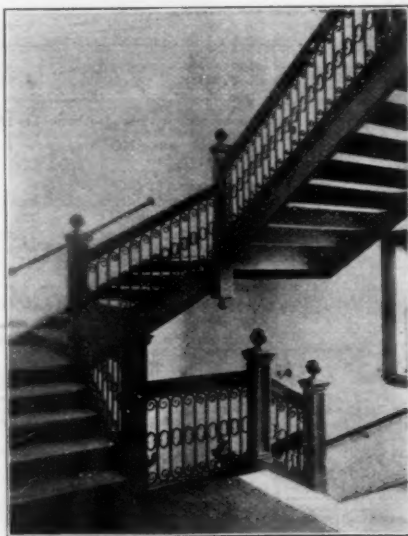
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CODE OF PRACTICE FOR SUB-ESTIMATING AND SUB-CONTRACTING

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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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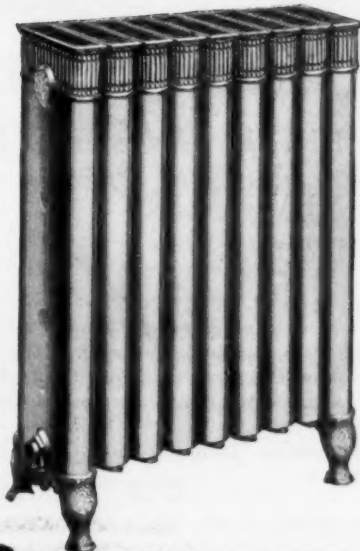
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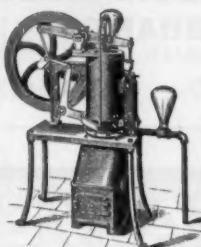
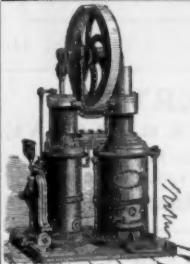
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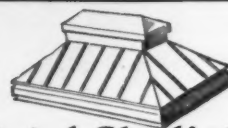
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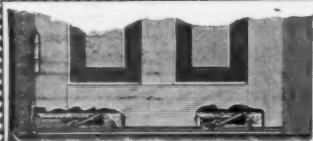
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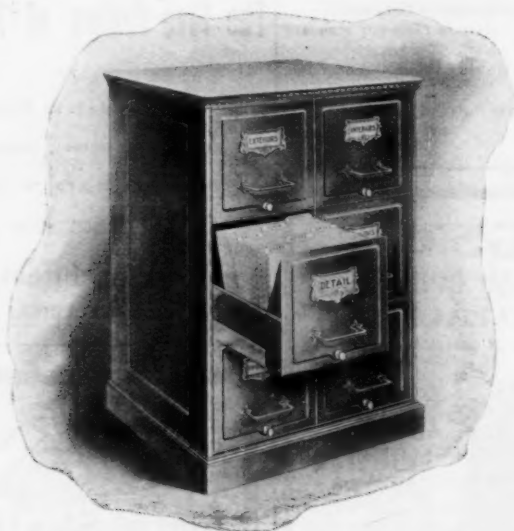
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The United States Realty & Construction Co. has arranged to buy back the Trinity Building, at No. 111 Broadway. The deal will probably involve about \$2,500,000. The company will erect a twenty-story structure on the famous site.

The new pavilion for private patients at St. Luke's Hospital, which has been donated by Mrs. Margaret J. Plant, is to occupy the southeasterly corner of the hospital property. It will stand at 113th St. and Morningside Drive, overlooking Morningside Park, and the city to the south and east.

An appropriation of \$750,000 has been made for new police headquarters to be built on the site of the old Centre Market, on the block bounded by Canal, Centre, Grand and Baxter Sts. The Board has also appropriated \$90,000 for a new police station house for the 72d precinct, Parkville, Brooklyn; also \$320,000 for the purchase of No. 104 Duane St. as a site for a fire house, and \$415,000 more for the construction of a building thereon.

North Birmingham, Ala.—The Loop Draught Boiler Co., with a capitalization of \$100,000, will shortly erect a plant here.

Omaha, Neb.—The Union Pacific Railway's land department will at once place about 4,500,000 acres of granted lands at the disposal of all comers, the sale not being restricted to homesteaders. More than 4,000,000 acres of these lands have been sold in the last four years.

Pittsburgh, Pa.—At a meeting of the Carnegie Library Board of Trustees it was decided to ask the city to give, as a site for the South Side Branch, a portion of the block at S. 22d and Carson Sts., bought recently for a public park. If this can be done, that section of the city will have a \$60,000 instead of a \$40,000 structure.

Pittsford, N. H.—A power-house and sub-station will be built for the Chittenden Power Co. at this place. It will be of brick, stone and concrete, 40' x 80'. French & Bryant, 4 State St., Boston, Mass., are the architects.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Providence, R. I.—Alterations in the central exchange of the Providence Telephone Co. on Union St. are under consideration. Its capacity will be doubled or trebled. Architects now are engaged on the plans, and it is expected that work will be commenced next spring. It is estimated that the cost of building, switchboard, conduits and cables will be upward of \$100,000.

St. Louis, Mo.—The contract has been let for the Indian building, which the government will erect at the World's Fair. The structure will be 60' x 208' in size, including an auditorium 40' x 60'. It is to have a basement and two stories above ground, will cost about \$25,000, and will be erected by J. W. Schleuter, who is building the Transportation Building. It is to be in the Spanish Renaissance style and will be completed within 30 days.

Superior, Wis.—Fire destroyed the saw mill of H. P. Cowdin, causing a loss of \$20,000. Insurance, \$10,000. The mill will be rebuilt.

Washington, D. C.—A bill has been introduced providing for the purchase of a site and the erection of a building for the Departments of State, Justice and Commerce and Labor. The bill is in many respects similar to one which Senator Fairbanks introduced in the last Congress, providing for a new building for the Departments of State and Justice and the executive offices of the White House. The feature of the present bill which is entirely new is the provision for a home for the Department of Commerce and Labor in the proposed structure. The bill provides that the building shall not cost more than \$5,000,000, and that it shall be erected on the block bounded by Jackson Pl., 17th and H Sts. and Pennsylvania Ave.

A bill has been introduced for the erection in this city of a monument to the private soldiers of the Union Army. An appropriation of \$100,000 is intended to be made, the location of the monument to be on public land other than the Capitol or Library grounds.

Wayland, Mass.—John M. Curtin has sold a lot of land on the Natick Road, near the centre of this

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

town. The purchaser is a Boston man who will build a residence.

Whitman, Mass.—A press report states that the William H. Dunbar estate, one of the landmarks of this town, has been purchased by Bradford L. Shaw, who will occupy the old homestead and erect a business block on part of the property.

Winchester, Mass.—The felt mill of Bacon Bros., recently destroyed by fire, is to be rebuilt at once, and the capacity of the plant nearly doubled.

Winona, Minn.—H. Choate has had plans prepared by Fremont D. Orff, of Minneapolis, for a flat building to be erected here in the early spring. It will contain twelve apartments, modern throughout, of pressed brick and cut stone, three stories and basement. Cost, \$20,000.

York, Pa.—Plans have been prepared by local architects for a public school building to cost \$45,000. It will be erected in the 10th Ward, and will be named in honor of D. K. Noel, the first Mayor of York.

Representative Lafean, of Pennsylvania, has introduced a bill in Congress appropriating \$400,000 for the purchase of a site and the erection of a public building here suitable to serve as a memorial of the fact that York was the seat of the United States Government during the darkest period of the Revolutionary War.

APARTMENT-HOUSES.

New York, N. Y.—Cherry and Montgomery Sts., four-st'y bk. flathouse with stores, 46' 3" x 87' 4" x irregular; \$70,000; o., L. Frank; a., Bernstein & Bernstein.

Ninety-seventh St., nr. Madison Ave., six-st'y bk. & st. flathouse, 62' 6" x 85' 3"; \$65,000; o., G. Brown; a., G. F. Pelham.

TENEMENT-HOUSES.

Brooklyn, N. Y.—Kingsdon Ave., nr. Park Pl., 2 four-st'y bk. tenements, 31' 6" x 74' 4", gravel roofs,



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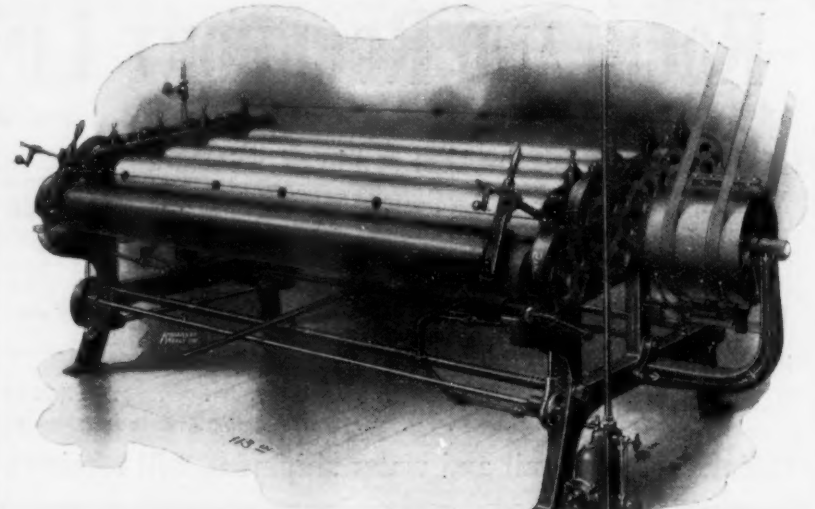
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BUILDING INTELLIGENCE.

(Tenement-Houses Continued.)

steam; \$36,000; o., N. Johnson & Son, 684 Bergen St.; a., A. S. Hedman, 371 Fulton St.

Kingston Ave., cor. Park Pl., four-st'y bk. tenement, 35' x 89'; \$20,000; o., Nels Johnson & Son, 684 Bergen St.; a., A. S. Hedman, 371 Fulton St.

New York, N. Y.—One Hundred and Second St., nr. Madison Ave., 2 six-st'y bk. & st. tenements, 40' x 87' 11", plastic slate roofs; \$90,000; o., C. M. Silverman & Son, 1433 Madison Ave.; a., Neville & Bagge, 217 W. 125th St.

Sullivan St., Nos. 66-70, six-st'y bk. & st. stores & tenement, 63' 11" x 69' 4"; \$40,000; o., Peckman & Levin, 246 Stockton St.; a., Sass & Smallheiser, 23 Park Row.

E. Ninety-eighth St., Nos. 217-221, 2 six-st'y bk. & st. tenements, 37' 6" x 87' 11"; \$80,000; o., Haft & Altman, 416 E. 62d St.; a., Geo. Fred Pelham, 503 Fifth Ave.

Bathgate Ave., cor. 176th St., four-st'y bk. tenement, 33' x 93'; \$22,000; o., Michael Redmond, Jerome Ave. & 233d St.; a., J. J. Vreeland, Jerome & Burnside Aves.

St. Marks Pl., Nos. 122-126, 2 six-st'y bk. & st. stores & tenements, 38' 7 1/2" x 81' 0"; \$70,000; o., Harris and Ely Maran, 235 Henry St.; a., Horenburger & Straub, 122 Bowery.

One Hundred and Third St., nr. Madison Ave., 5 six-st'y bk. & st. tenements, 40' x 87' 11", plastic slate roofs; \$225,000; o., G. M. Silverman & Son, 1433 Madison Ave.; a., Neville & Bagge, 217 W. 125th St.

BUILDING INTELLIGENCE.

(Tenement-Houses Continued.)

Madison St., Nos. 359-361, six-st'y bk. & st. stores & tenement, 47' 6" x 83'; \$40,000; o., Pollak & Dubinsky, 396 Grand St.; a., Horenburger & Straub, 122 Bowery.

One Hundred and Second St., nr. Park Ave., 3 six-st'y bk. & st. tenements, 40' x 87' 11", plastic slate roofs; \$135,000; o., Moses Crystal, 101 W. 126th St.; a., Neville & Bagge, 217 W. 125th St.

St. Nicholas Ave., cor. 145th St., six-st'y bk. & st. tenement, 101' 3" x 103' 9"; \$175,000; o., Robert J. Layercraft, 116 St. James Pl., Brooklyn; a., S. B. Ogden & Co., 954 Lexington Ave.

Bathgate Ave., nr. 176th St., 2 four-st'y bk. tenements, 37 1/2' x 81' 3"; \$40,000; o., Michael Redmond, Jerome Ave. & 233d St.; a., J. J. Vreeland, Jerome & Burnside Aves.

WAREHOUSES.

New York, N. Y.—Wooster St., cor. Houston St., nine-st'y bk. & st. lofts, 48' 1 1/2" x 75', plastic slate roof; \$125,000; o., Brody, Adler & Koeh, 132 Nassau St.; a., Sass & Smallheiser, 23 Park Row.

W. Twenty-first St., Nos. 15-23, W. Twenty-second St., No. 16, eleven-st'y bk. & st. store & loft building, 137' 2" x 197' 6" x irregular, slag roof; \$500,000; o., Benjamin Stern, 7 W. 53d St.; a., Schickel & Ditmars, 111 Fifth Ave.

MISCELLANEOUS.

Brooklyn, N. Y.—Avenue U, cor. E 15th St., three-st'y bk. police station, 60' x 84', slag roof, steam; \$92,000; o., City of New York; a., L. H. Voss, 65 De Kalb Ave.

Watkins St., nr. Glenmore Ave., two-st'y bk. fire-engine house, 50' x 69', steam; \$35,000; o., City of New York; a., A. Stevens, 157 E. 67th St.

PROPOSALS.

QUARRY TENDERS.

[At Sydney, N. S.] Sealed tenders will be received by the undersigned on or before the fifteenth day of December, 1903, at the office of the Dominion Iron & Steel Co., Limited, Sydney, N. S., Canada, for the quarrying, crushing and delivering f. o. b. vessel, of from 200,000 to 400,000 tons of limestone per year, to be taken from the quarries of said company at Marble Mountain, Inverness County, Cape Breton, as per specifications. Copies of the specifications can be seen at the company's office, together with blueprints and photographs, showing quarry and plant. Work to begin January 1, 1904. Contract to be for three years. **DAVID BAKER**, General Manager, Dominion Iron & Steel Co., Limited. 1458

HOSPITAL.

[At Fort McDowell, Cal.] Bids are wanted December 18 for constructing a brick hospital (including plumbing, gas-piping and heating) at this post. **WM. S. PATTEN**, Ch. Q. M., San Francisco. 1458

HALL.

[At Paintsville, Ky.] Contractors are invited to submit sealed proposals for the erection and completion of the union hall, Sandy Valley Seminary, to be erected at Paintsville, Ky. Plans and specifications may be seen and obtained at the following places on and after December 1, 1903: Office of B. L. Priddle, Huntington, W. Va.; A. K. Johnson, Ironton, O.; P. K. Mallin, Ashland, Ky.; Rev. Zephaniah Meek, Catlettsburg, Ky.; M. F. Conley, Louisa, Ky.; John C. C. Mayo, Paintsville, Ky.; and at the office of the architect, J. R. Gieske, Cerado, W. Va. Proposals are to be sent to the office of the architect until December 14, 1903, and will be opened at once thereafter. 1458

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PROPOSALS.

SCHOOL.

[At Terre Haute, Ind.]
Bids will be received for the erection of an eight-room school-building at district 8, corner of 17th St. and Franklin Ave., in the city of Terre Haute, according to plans and specifications by W. H. F. yd, architect; bids to be in by December 11, 1903. The plans are to be seen at the architect's office, 656 Wabash Ave., in the city of Terre Haute. All bids are to be left at the office of the superintendent of public schools, High School Building, Terre Haute. FRANK M. DUNKIN, Secretary School Board. 1458

POWER-HOUSE.

[At League Island, Pa.]
Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, until December 26, 1903, for constructing a brick and steel building at the navy yard, League Island, Pa. Plans and specifications can be seen at the Bureau, or will be furnished by the commandant of the navy yard named upon deposit of \$10 as security for their return. MORDECAI T. ENDicOTT, Chief of Bureau. 1459

HOSPITAL.

[At Whipple Barracks, A. T.]
Office Constructing Quartermaster, Whipple Barracks, Prescott, A. T. Sealed proposals will be received here until December 23, 1903, for furnishing the labor and material for the construction, plumbing, gaspiping, heating and electric wiring of brick hospital. Plans, specifications and other information in this office, and in the offices of the chief quartermaster, San Francisco, Cal., and Denver, Col., and constructing quartermaster, Fort Leavenworth, Kan. CHAS. C. WAlCUTT, JR., constructing quartermaster. 1459

PUMP, BOILER AND ICE PLANT HOUSE.

[At Fort Clark, Tex.]
Bids are wanted December 23 for constructing a pump, boiler and ice plant house at this post. T. E. TRUE, Ch. Q. M., San Antonio. 1459

STOREHOUSE.

[At Fort Brown, Tex.]
Bids are wanted December 23 for constructing a subsistence storehouse at this post. T. E. TRUE, Ch. Q. M., San Antonio. 1459

POWER HOUSE.

[At League Island, Pa.]
Bids will be received December 26 by Mordecai T. Endicott, Ch. Bureau Yards and Docks, Washington, D. C., for constructing a brick and steel power house about 104' x 106' at Navy Yard, League Island. 1459

PAVING.

[At Crookston, Minn.]
Sealed proposals will be received at the office of the City Clerk of the City of Crookston, Minn., until January 12, 1904, for the paving of the following streets with macadam: Broadway St., from Fletcher St. to Bridge across Red Lake River, and from 3d St. to 4th St.; Main St., from Fletcher St. to Bridge across Red Lake River, and from 3d St. to 6th St.; Fletcher St., from Main St. to Broadway St., and 3d St., from Main St. to Broadway St., in accordance with plans and specifications now on file in the office of the City Engineer. Bids to be tendered on all granite macadam, sandstone base with three inches of granite top, granite curbing, sandstone curbing and granolithic gutter. W. H. GRAVER, City Clerk, Crookston, Minn. 1459

Treasury Department, Office of the Supervising Architect, Washington, D. C., November 25, 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 construction (except heating apparatus) of the U. S. Post-office and Court-house at Harrison, Arkansas, in accordance with the drawings and specification, copies of which may be had at this office, or at the office of the Postmaster at Harrison, Ark., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1459

Treasury Department, Office of the Supervising Architect, Washington, D. C., November 30, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 8th day of January, 1904, and then opened, for the construction (except heating apparatus, electric wiring and conduits), of the extension to the U. S. Post-office and Court-house at Kansas City, Mo., in accordance with the drawings and specification, copies of which may be had at this office, or at the office of the Custodian at Kansas City, Mo., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1459

PROPOSALS.

PLUMBING, ETC.

[At Fort Apache, A. T.]
Office Chief Quartermaster, Denver, Col. Sealed proposals will be received here until December 12, 1903, for plumbing and sewer connections at Fort Apache, A. T. Information furnished on application here or at office of post quartermaster. J. W. POPE, chief quartermaster. 1458

Treasury Department, Office of the Supervising Architect, Washington, D. C., December 2, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 4th day of January, 1904, and then opened, for the construction of an elevator shaft in the U. S. Appraiser's Warehouse at New York, N. Y., in accordance with drawing and specification, copies of which may be had at this office or at the office of Chief Engineer and Superintendent of Repair, U. S. Court-house and Post-office building, New York, N. Y., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1459

Treasury Department, Office of the Supervising Architect, Washington, D. C., December 2, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 21 day of January, 1904, and then opened, for the erection and completion of the U. S. Government Building, Life Saving Exhibit, Louisiana Purchase Exposition, St. Louis, Missouri, in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Superintendent of the U. S. Government Buildings, Louisiana Purchase Exposition, St. Louis, Mo., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1459

SEWERS, CAST-IRON PIPE, HYDRANTS AND VALVES.

[At New Orleans, La.]
Office of the Sewerage and Water Board, 602 Carondelet St., New Orleans, La. Sealed proposals will be received until February 2, 1904, for the construction of approximately 66 miles of sewers and appurtenances and the laying of 2.7 miles of water mains. After December 20, 1903, specifications, general plans and blank forms of proposals may be obtained at the office of the Board, and plans and specifications can also be seen at the office of Hering & Fuller, Consulting Engineers, 170 Broadway, New York. F. S. SHIELDS, Secretary. GEO. G. EARL, General Superintendent. 1460

PROPOSALS.

Treasury Department, Office of the Supervising Architect, Washington, D. C., December 2, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 4th day of January, 1904, and then opened, for the installation of two electric passenger elevators in the U. S. Appraiser's Warehouse, New York, N. Y., in accordance with the drawings and specification, copies of which may be obtained at this office at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1459

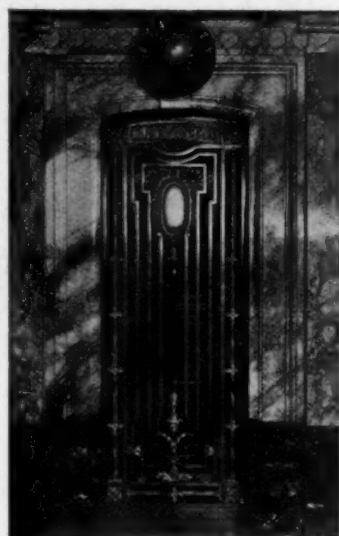
Treasury Department, Office of the Supervising Architect, Washington, D. C., November 18, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 17th day of December, 1903, and then opened, for the installation of an electric passenger elevator in the U. S. Post-office building at Butte, Montana, in accordance with drawing and specification, copies of which may be obtained at this office at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1458

Treasury Department, Office of the Supervising Architect, Washington, D. C., November 19, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 29th day of December, 1903, and then opened, for the construction (including plumbing, heating apparatus, electric wiring and conduits) of the extension of the U. S. Post-office at Rome, Georgia, in accordance with drawings and specification, copies of which may be had at this office or at the office of the Custodian at Rome, Georgia, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1458

Treasury Department, Office Supervising Architect, Washington, D. C., November 18, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 10th day of December, 1903, and then opened, for the installation of an electric passenger elevator in the U. S. Post-office and Court-house Extension at Dallas, Texas, in accordance with the drawings and specification, copies of which may be obtained at this office at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1458

ELECTRIC PLANT.

[At Holton, Cal.]
Proposals for the erection of the \$75,000 electric plant of Holton Power Co. will be received until January 1. W. F. HOLT, president. 1459



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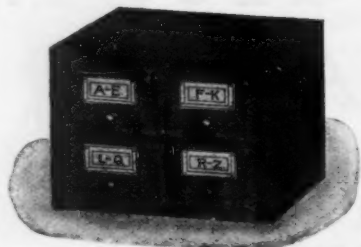
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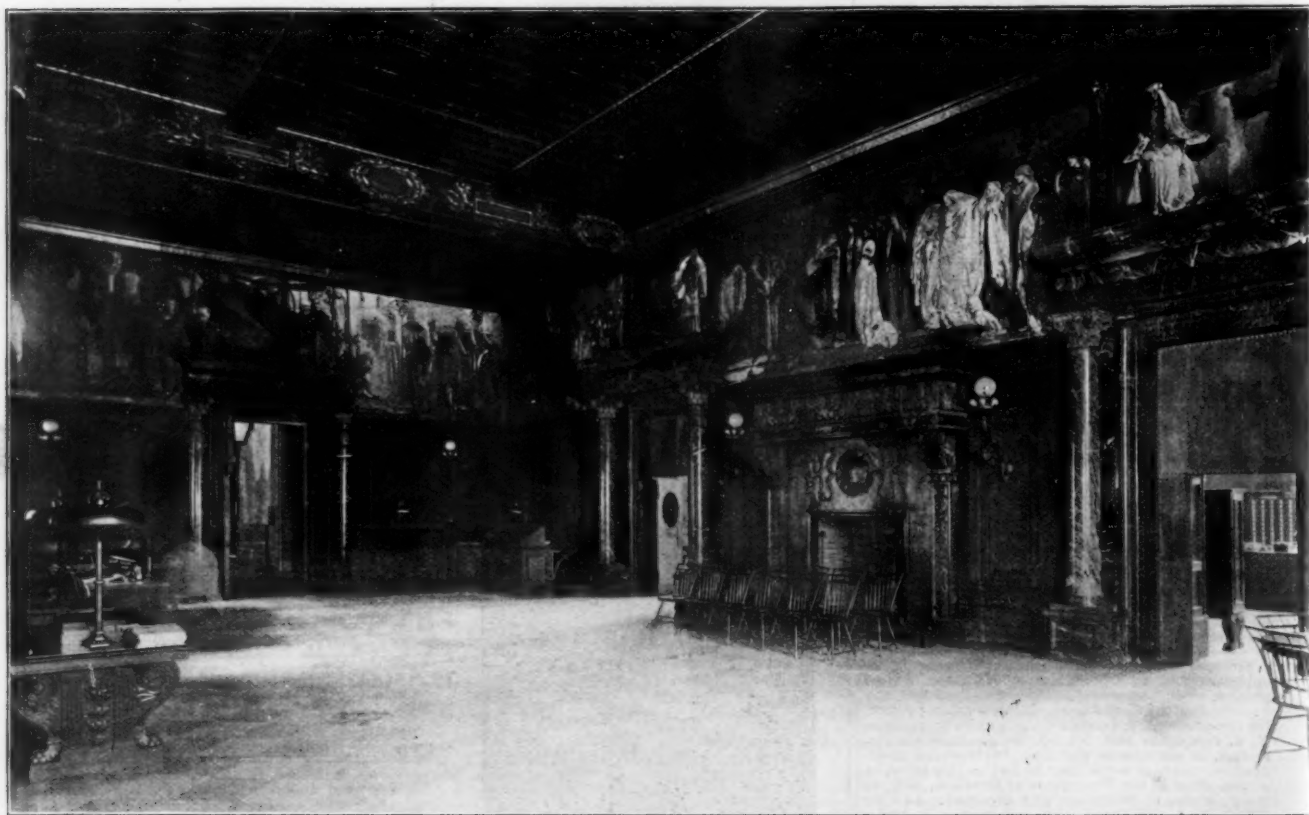
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Professional Ethics.

The following . . .

. . . CODE OF ETHICS . . .

Prepared in Conformity with the
Best Standards of Practice, and
Recommended to its Members by
the Boston Society of Architects,
was

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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