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WE have obtained some further information in regard to the matter of the new Mining Building of the University of California. As we suspected from the first, the newspaper story about the "mistake" made by the architect had no foundation whatever, so far as the architect was concerned. All the competitors were furnished with a topographical plan, which accurately represented the present surface. It is hardly necessary to say that an enormous and symmetrical group of buildings placed on the slope of a mountain is unlikely to find a site perfectly suited to all its parts without artificial modification of the ground, and the necessity for such modification was recognized by all the competitors, and all the members of the jury, and, apparently, by the Trustees of the University. As it happened, the building which the Trustees found to be first needed came in the place where the greatest change in the natural grade was contemplated; and, while it is true that a comparatively large amount of grading and foundation-work will be required for carrying it into execution as planned, it is not true that any "mistake" was made by the architect, or the jury, or the Trustees, or the engineer who drew the topographical survey, in connection with the matter. It is generally known that M. Benard, to the great regret of the profession in this country, has decided not to exile himself from France for the long period which will be required for executing his design, and that the work will, at least for the present, be carried on by others, adhering as strictly as possible to the accepted plans. On closer study of the site, it has been found that by shifting slightly the axis of M. Benard's group, a large part of the earthwork and grading necessary under the present plan can be saved, and it is possible that, with M. Benard's approval, this may be done; but the profession, in this country and abroad, which has been a little disturbed by the newspaper stories of "mistakes," and consequent changes in the plans, may rest assured that no mistakes have been made, and that no unwarranted interference with M. Benard's design is contemplated by anybody.

AN extraordinary specimen of custom-house proceedings is reported from Canada. The Government of British Columbia has invited tenders for the construction of two bridges, to be accompanied, as is usual in such cases, by plans. Plans and tenders for both bridges were sent by American engineers, but were seized at the frontier of the Dominion and held for payment of duty, which the Collector estimated at three thousand dollars in one case, and four hundred and sixty dollars in the other. Our readers will remember that Canada has for a long time imposed a duty on architects' plans for buildings to be erected in the Dominion, but, in the present case, the Government of British Columbia is the victim. An appeal has been made to the Governor-General, at Ottawa, but, in any case, there is likely to be delay in getting the plans, and, if the Collector's decision is confirmed, and the Legislature of British Columbia is obliged to appropriate money for paying the duties, the delay will be serious.

ACCORDING to the newspapers, the Pennsylvania Railroad Company is about to construct a tunnel under the Hudson River, through which to bring trains into the middle of New York City, instead of depending upon ferry-boats to transport its passengers to the present terminus at Jersey City. It seems rather a pity that the existing tunnel, which already extends almost from shore to shore, should not be utilized, but the Company undoubtedly knows what will serve its purpose best. It is also said that the same Company will continue its tunnel under the East River, to connect with the tracks of the Long Island Railroad, in which it holds a controlling interest. Some of the newspaper stories say that only passenger trains will run through the tunnel; while others, with more probability, assert that freight-trains will also use it. Undoubtedly, the plan of the Pennsylvania Company, the most intelligent and thoughtful railway corporation in the world, is to secure a quick and direct communication between its lines and those of the great New England systems, as well as with the comparatively unimportant Long Island roads, and, while passengers between New England and the South will be glad to escape the present tedious transfer across or around New York, there are signs that the enormous export freight traffic of the country is quietly seeking a better outlet than New York, and the plan of the Pennsylvania Company may contemplate something of the kind.

AS we ventured to predict a few weeks ago, the official price of copper has been reduced about one-quarter, and consumers, such as the manufacturers of copper wire and brass goods, have indicated their opinion that the reduction will be permanent by a corresponding reduction in their own price-lists. Whether the fall in copper prices will stop at the present level remains to be seen. As a rule, movements of the kind do not terminate just at the point fixed for them beforehand, and it is said that the large sales of copper officially reported at the reduced price were really only options, the dealers agreeing to sell, but the purchasers not binding themselves to buy. It is hardly necessary to say that a reduction in the price of sheet copper and plumbers' brasswork will be advantageous to the building-trades. No owner likes to feel that he is paying an artificial price for anything that enters into so permanent an investment as a building, and declines in building-materials controlled by monopolies, or protected by a high tariff, will do more than anything else to attract capital again into construction.

M. CHARLES CHIPIEZ, distinguished both as an archæologist and as an architect, died a few weeks ago at his home in Paris. Every architect in this, as well as other countries, knows the remarkable books which he prepared, in collaboration with M. Georges Perrot, on the "*History of Art in Antiquity*," but this was by no means his only archæological work. Years ago, he published a "*Critical History of the Origin and Foundation of the Greek Orders*," which was "crowned" by the Academy of Belles-Lettres; and he was the author of many essays and studies on similar subjects. This country knows him as an archæologist, also, through the beautiful models of the Parthenon and the Pantheon, made under his direction for the Willard Collection in the Metropolitan Museum, in New York. As an architect, he carried out only one important work. His inclination as an artist led him to the designing of tombs and monuments, of which he executed many, the most noted being the monument at Buzenval, in commemoration of the siege of Paris.

TWO recent occurrences in connection with the building trades in New York give a certain encouragement for the future. The first of these occurrences is a judicial decision, by which it is held to be unlawful for any man, or body of men, to threaten to strike for the purpose of coercing an

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employer to discharge any person, or to conspire to strike for such a purpose; and the second is the virtual dissolution of the Board of Walking Delegates, and the substitution in its place of a committee of a new federation of unions of building mechanics, pledged not to order strikes until all peaceful methods of settling disputes have failed. The motive for the secession of the sixty-five thousand men forming the new federation from the old Building Trades Council is said to be their dissatisfaction with the way in which strikes were ordered, often at times when work was plenty, at good wages, simply for the purpose of damaging rival organizations, or showing "sympathy" for one side or the other in some ridiculous quarrel in which nine-tenths of the men ordered to strike had no concern whatever, even if they did not have reason for suspicion that it was a purely fictitious affair, concocted by the "champions" of labor for the purpose of advertising themselves, and strengthening the feeble allegiance of their followers. Building is very active in New York just now, and, if the next six months can be passed without any "struggles," or "sympathetic strikes," or other follies on the part of the men, the probability is that the ensuing season will be equally prosperous.

THE *Deutsche Bauzeitung*, with its usual impartial and enlightened judgment, gives a short criticism of the designs for the Victoria Monument, in London. It fully agrees with the *Builder*, that the fact that Mr. Webb, and, probably, the other competitors, were in ignorance of the form and surroundings of Mr. Brock's monument, for which their work was to form the frame, showed complete lack of common-sense in the officials who arranged the competition; but it thinks that, on the whole, Mr. Webb produced a satisfactory solution of the general problem. The main difficulty, that of bringing the ugly and uninteresting front of Buckingham Palace into the competition, was, it thinks, happily solved by arranging a garden between it and the colonnade which forms the back of Mr. Webb's design; and it particularly commends his device for obtaining a sort of vista from the Strand into the circle which forms one end of the "Processional Path." Naturally, this last feature suggests to a German the Siegesallee in Berlin, but the London "Processional Path" is so enormously wide and long that it will have to be furnished with something more effective and interesting than the little arches, like turnpike gates, scattered through it at long intervals, which Mr. Webb's design shows, before it can compare with the Siegesallee. Of course, it is not Mr. Webb's fault that he has to try to stretch a monument out over twenty acres of ground, but, although we agree with the German editor, that his design is much the best of those submitted, we cannot say that we anticipate much satisfaction in seeing it carried into execution. The English have little notion of heightening the effect of a monument by well-proportioned and suitable surroundings, and Mr. Brock's design, so far as it can be judged from photographs of the model, is far too small for the enormous composition of which it should be the culminating point, besides being in itself architecturally ill-studied and insignificant. It is possible, of course, that the whole affair may be refined by further consideration into something of which England will have reason to be proud; but, before this result can be attained, the "Processional Path," which is about two-thirds of a mile long, must lead to something more imposing than a ten-acre lot, cut up into flower-beds and ponds, and diversified by fountains, with a monument about forty feet high standing in the middle of it.

ONE of the most important industrial occurrences of recent date is the passage of the Act of Parliament authorizing a corporation to supply the so-called Mond gas, for heating and power, throughout a considerable number of towns in South Staffordshire and East Worcestershire. Under the Act, the cost of the gas, to consumers requiring not less than sixteen million feet per annum, is not to exceed six cents per thousand feet, and the price to smaller consumers is not to exceed eight cents per thousand feet. It is also provided that the heating-value of the gas shall not be less than one hundred and twenty-five British thermal units per cubic foot; and that it shall not contain more than fourteen per cent of carbon monoxide. As a consolation to the municipalities which own gas-lighting plants, and who have fought desperately against the Mond Act, it is provided that if any customer of the Mond Company uses the gas for illuminating purposes, which he could easily do by mixing it with naphtha vapor, the company is to cut off his supply. As now made in England, the Mond gas contains about fifty per cent of nitrogen, which is absolutely inert, serving only to dilute the carbon monoxide and hydrogen carbide which form the only ingredients of any value. The manufacture is very simple, and something like seventy-five per cent of the cost of production is reimbursed by the sale of the sulphate of ammonia which is formed as a waste product; but, even then, it is difficult to understand how the gas can profitably be distributed and sold at the stipulated price. As five times as much heat or power can be obtained for a given sum from the Mond gas as from burning coal directly, the new system is of the greatest industrial importance; and with us, where the market for sulphate of ammonia, for fertilizing, is unlimited, and where coal-slack can be delivered at a low price in the middle of great industrial communities, it seems as if it might be particularly valuable.

THE old, old story of the man who has discovered the art of storing up heat from the sun has been revived in the newspapers. This time, the man lives in Indiana, and the substance which he uses for "storing up" the heat is in the form of "blocks." It is needless to say that the composition of these "blocks" is kept secret, as is also the process by which the "heat-rays" are got into the "blocks," and are subsequently got out again when they are wanted. "A meeting of capitalists" has already been held, at which a "practical demonstration" of the process was made, which, we are told, "fully satisfied" all present that the new device would "revolutionize" the methods of heating. If any one of our readers is desirous of emulating in this direction the scientific and financial triumphs of Mr. Keely and the promoters of liquid-air companies, he might, perhaps, at least, make some interesting observations in physics by operating, as a beginning, on common loam. It is well known to gardeners that ordinary soil will absorb the sun's rays to such an extent that a thermometer, with its bulb placed a few inches below the surface of moist soil on a sunny day, will often rise thirty degrees or more above the temperature of the air over it, and this effect can be materially increased, as has usually been done by the inventors of "sun's-ray storage" processes, by putting sheets of glass over the loam, to shut out currents of air. After getting the soil hot, the difficulty presents itself of keeping it so, and, so far, nothing within our knowledge has proved more effective than putting it in a highly polished box, plated with silver or nickel. Our grandmothers put their tea in polished silver teapots, and covered their warm dishes with silver covers, expressly to keep the heat in; and some of their descendants, forgetting the wisdom of their ancestors, have found, to their disappointment and displeasure, that the nickel-plated steam-pipes which they fitted up in their luxurious bath-rooms for drying towels did not dry the towels with anything like the efficiency of rough iron or bronzed pipes; so that it is not impossible that the sun's rays might be in some such way stored and kept for a sufficient length of time to astonish and delight "a meeting of capitalists"; but the application of such a process to practical requirements would be a very different matter.

"THE COLLEGE OF MODERN ÆSTHETICS," of which we confess that we hear for the first time, recently held a meeting "to protest against the official teaching of art in France," which seems to have been a lively affair. The clever and energetic M. Frantz Jourdain, whose writings as an architect are well known to the profession here, was one of the presidents of the meeting, M. Alfred Bruneau, a distinguished critic, being the other; and a letter of sympathy from the novelist Zola, which had been received by the managers, was read, not without difficulty, to the audience. An attempt was made to give an account of the griefs of M. Tony Garnier, a Prize of Rome scholar at the Villa Medicis, who sent his annual set of drawings, as usual, only to have them rejected by the Institute, which even refused to allow them to be exhibited, on the ground that they were not in accordance with the programme; but the voice of the speaker was drowned by a mixture of howls of disapprobation and cheers of sympathy, which proceeded from all parts of the room. M. Jourdain tried to say that the School of Fine-Arts was behind the age, and hostile to all new manifestations of art, but violent protests arose from the pupils of the School who were present, followed by counter-demonstrations on the part of the friends of the "new art." At last, the managers of the affair, finding that no one could be heard in the tumult, and that the disorder was increasing, terminated the meeting, and the audience dispersed "noisily, but without incident."

CHARLES CHIPIEZ, ARCHITECT.

AT the grave of his friend and co-worker, last month, M. Georges Perrot delivered the following address to the friends of the deceased architect: —

When I left Chipiez, in the early days of the month of August, I hardly expected again to see him in life, so far was he already overcome by the malady to which he has just succumbed. I feared, even, that the journey which occupied my vacation might prevent me from arriving in time to address to him, on the brink of the tomb, a last farewell. To-day, in the grief which the death of a friend, bound to me by twenty long years of almost daily collaboration, causes me, it is a consolation to be able to say, here before you, what Chipiez was to me and what I owe to him.

It was through the intervention of M. Émile Trélat that I knew Charles Chipiez. M. Trélat associated him with himself from the beginning, when he founded that school of architecture the early days of which were at the same time so difficult and so brilliant. He led him to enter that small group of open-minded and bold spirits whom he asked to unite with him in attempting an enterprise which had its risks. He soon appreciated at his just value the master whom he had given to his pupils on his first impulse; he was not slow in recognizing that Chipiez had the real pedagogic aptitude, as well as the feeling for beautiful form and an acquired science.

Absorbed in the necessities of their occupation, few architects have leisure enough to interest themselves in the history of their art. This history, from his youth up, Chipiez devoted himself to. From Lyons, his birthplace, where he pursued his early education, he came, urged by a legitimate ambition, to seek his fortune in Paris. He passed through the atelier of Viollet-le-Duc; he was next enrolled in that of Dufeux, and, though working hard, he maintained himself with great difficulty; but, from that time forward, all the time which was not occupied by his professional pursuits he passed either at the École des Beaux-Arts or the Rue de Richelieu, in consulting the great books in which are illustrated the monuments of the past. He also set about, with the very small income at his disposal, collecting for himself, in his modest lodgings, the elements of a special library, which he did not cease enlarging from that time, and which now contains many rare works. Almost each of these works stands for a long halt before the book-stalls on the *quais*. There is one such folio which, by persistent research, he acquired at different intervals, securing one day some of the plates which composed it, and picking up others at intervals of a month, and again a portfolio, finally completing his whole. These strolls along the *quais*, from which he rarely returned home with empty hands, were, up to the day when the change in his health prevented them, one of the greatest joys of our friend, and his favorite distraction.

The result of what he thus acquired through his reading and reflection Chipiez gave to the world in 1876, through the publication of a book under the title of "*Les Origines des Ordres Grecs.*" The book was illustrated by numerous figures drawn by the author with the object of making understood the ingenious and often subtile theories which were therein explained. In this book there was manifested a marked preference for perspective views. These give to the reader who does not belong to the building fraternity a much better idea of the real form than he could obtain from the ordinary presentation of conventional elevations. Chipiez, moreover, showed how familiar he was with the different systems of perspective, which, according to circumstances, he used at different times.

M. Trélat brought Chipiez to me, to whom he had just presented a copy of his book. I wrote a very complete review of it in the *Journal des Savants*, and he was very much touched, less by the praises, which had not been bargained for by him, than by the care and attention with which I had discussed those of his ideas which seemed to me to call for certain criticisms. When, in the same year, I opened at the Sorbonne a course in classic archæology, I saw him at each lecture seated in the front row of my audience. The lesson finished, we used to chat together. He frequently accompanied me to my door, and I was not slow in perceiving that on certain subjects which I was treating, particularly the architecture of Egypt, Assyria and Persia, which I was then lecturing about, he knew more than I did. So I learned much from these conversations. At the same time, he had the kindness to put at my disposal certain of his young men, who at that time were working under his direction, so that they might execute for my lectures drawings at a large scale, some of which were actually used as the first sketches for the fine plates which he later drew and caused to be engraved for the first volumes of the "*Histoire de l'art dans l'antiquité.*" You can conceive how from these conversations and the composition of these images there was born between us two the idea of a close collaboration. From different directions, I had been counselled to prepare a book based on the lectures in which I was attempting to retrace, in the order of time, the entire history of the evolution of the arts of design amongst the ancient peoples, from the origin of the old civilizations of the Valley of the Nile and the Valley of the Euphrates up to the time of Greek art at its apogee. This idea could not fail to attract him, in spite of the enormous amount of work which the realization of this programme, however incomplete it might be, presumed; but on examining the greatest authorities and the books of the wisest of those authors who had attempted such a task, I very quickly perceived that in all of them architecture was sacrificed, and yet, in every people and in all the ages in which plastic genius developed to the highest degree of power and fecundity, it was always the architect who was the supreme regulator of the works of art; that it was he who assigned to the painter and the sculptor the field which they must fill, and who indicated to them the themes which they must treat. To be in a fit position to write the history of the arts of antiquity, which should contain no gaps, I was quickly convinced that an archæologist needed the coöperation of an architect. The latter alone could know how to give precision to terms where, hitherto, writers had been content to be somewhat vague; he alone would be capable of explaining, by sections skilfully selected and figures specially composed, the actual structure of the edifices and the original character of the forms — all those things, in short, which ordinarily one hardly glimpses in those views of "actual conditions" which in one book after another are repeated to satiety.

This indispensable collaborator, this architect, careful in his theory and instructed in the past history of his art, chance placed on my road; to allow him to escape would have been folly. We had the great good fortune of finding a publisher, M. Émile Templier, of the Maison Hachette, who comprehended the interest which the book, of which we brought to him the plan, would have. More than twenty years ago we set ourselves to work, Chipiez and I, having subdivided the work, and of our "*Histoire de l'art dans l'antiquité*" there have appeared seven volumes, which at least testify to the perseverance of our common effort.

It is not for me to appreciate the value of the results of this so-long-continued collaboration which the death of one of the partners could alone affect; but what I feel I can say here, to render public justice to the faithful companion of my labor, is that, if the work which caused us so much trouble and gave us so many joys is distinguished from those of the same kind which preceded it, it is especially the fact that architecture here for the first time obtains the place which it was established to assert. It is with one or several chapters consecrated to architecture that opens each of these monographs, which, with the remainder, was to form a whole that I now hardly hope to complete. The different arts are thus presented for every people in what might be called a natural order responding to their organic and natural hierarchy. This priceless advantage I owe to Chipiez, to the science and taste which he brought to the despatch of that portion of our common task which was specially entrusted to him.

Nowhere better than in the last of the volumes which have appeared under our double signature did Chipiez prove that I had not expected too much from his capacity and devotion. As if he had foreseen that his days were counted, he gave a great development to the two chapters where are described and analyzed the most noble creations of Greek genius, the Doric temple and the Ionic temple. He made of these two chapters a kind of methodical treatise which in its enforced brevity contains every essential and renders easily intelligible for any cultivated mind the plates so clear in their disposition and the numerous figures inserted in the text which accompany the study. There would doubtless have been additions to make and supplementary information to present when we should have arrived at the structures of the fifth and fourth centuries, where we would have had to point out certain refinements of art of which the architects of the sixth century were not yet advised; but the Mnesicles and the Ictinus, the builders of the Erechtheum and the sumptuous Ionic temples of the Macedonian epoch, still apply the principles laid down by their foregoers and follow the same rules. Their part in the invention is only in the proportions which they vary and in the ornamentation which they perfect and enrich, which later they will give themselves up to complicating and overloading.

Two beautiful drawings have been prepared under the direction of Chipiez for the edifices which correspond with the apogee of Greek art, the temples of Zeus at Olympia, of Athena Parthenos, of Niké Apteros, and the Erechtheum; he gave as much attention to them as the sickness which was overcoming him allowed him to give. He will, therefore, still be represented by them in one, at least, of the volumes of the work which I am condemned to complete without him. To be able to comment on these drawings, I shall endeavor to recall all that I learned from him in those long seances when, very often late at night, we used to consult his books, rereading the pages which I submitted to him and changing our ideas on all the problems which came up one after another to solicit our attention.

Thanks to the reception which has been accorded this work, in France even, and especially abroad, the name of Chipiez, I have the firm belief, will remain inscribed in a fair place among the names of the best-informed and most judicious of the historians of art. That which will distinguish Chipiez from his emulators is that, better than any of them, he knew how to use his pencil to supplement the insufficiency of the pen. In the restorations, or rather in the restitutions, which he presented of buildings ruined, or even of those which had completely disappeared, the imagination of the artist coöperated with his science and erudition in giving an idea of the original appearance of these buildings that is singularly more clear and living than could have been given through the most circumstantial descriptions. These images, which the size of our book unfortunately causes to be reduced, have been everywhere put to pillage. Theatre-decorators, authors and others in the search of illustrations, all have made free use of them, ordinarily without even indicating the source whence they were drawn, disfiguring their models with more or less skill. Chipiez sometimes became indignant over it. I did not succeed in convincing him that these ill-disguised

borrowings were the frank confession of his mastery and the certain proof of the success and vogue of his compositions.

Chipiez had the ambition to be something more than a theorist. He desired to build otherwise than on "double elephant." What he might have been able to produce as an architect, he only had one chance of showing, and that was when he was employed by Jules Ferry to build the professional school at Armentières. The happy arrangement of plan, as well as the admirable distribution of all the services, the use he made of materials which the country furnished, in giving its *ensemble* much color and effect without exceeding his appropriation, won for him the applause of certain connoisseurs who went to see this monument, somewhat lost in a city entirely industrial in its character.

The success here should have won for Chipiez other commissions, more important, but he did not find another chance. To obtain one, he would have had to know how to live less apart from the world, less buried in a retirement which was somewhat grim. The master through whose teaching he received the best that he knew, Constant Dufeux, was dead before he could lend any efficient aid to his favorite pupil. Now, Chipiez was one of that kind of men who stand in need that an active and devoted friend should charge himself with his affairs, because they are themselves powerless to bring them to a happy conclusion because of lack of tact and family connections. He belonged to no coterie; he voluntarily rendered services, he did not understand how to demand payment for them. For my part, I claim praise because I was able to make easy his approach to the function of inspector of the teaching of drawing and control of the services of architecture, which gave him, during the last part of his life, a situation less narrow than that in which I had first known him, in the grasp of straitened circumstances and uncertain as to how to meet to-morrow's demands. His soul always remained somewhat overshadowed by the difficulties of his early life, by the feeling that, had he been placed in more favorable circumstances and with protecting friendships, he might have been able to use the force which he felt within him, and his great faculties, in a more advantageous and still more brilliant career.

I have seen Chipiez more often sad and disquieted than gay and confident. He was one of those who suffer more from that which life has refused them than they have rejoiced because of that which at last it has yielded to them. Nevertheless, I would not dare to say that he was unhappy. Before the sickness which made all prolonged work painful to him, he consecrated almost every hour to studying the most interesting of questions which can occupy the mind. He kept up a most intimate intercourse with the best works created by an art which he sincerely loved. He sought out and analyzed the methods which the mind of the artist must have followed in order to find its expression in the forms and buildings which have been transmitted to us. When one has the passion for such problems, one no longer knows that there are those great evils, idleness and ennui. If, by reason of circumstances, he did not completely fulfil his destiny, what his native vigor and the ardent character of his intelligence allowed him to do is well worthy of envy.

LEATHER BINDING.[1]

FOR many years past there has existed a growing dissatisfaction among librarians and owners of libraries with the quality of the leather put on books, owing to the fact that many books bound within comparatively recent years already show serious signs of deterioration and decay. This dissatisfaction grew in volume until a small committee of gentlemen interested in the subject called together by Mr. Douglas Cockerell, under the chairmanship of Mr. Cobden Sanderson, began to investigate some of the causes, and to take evidence on the subject. At this committee a certain amount of information was gleaned, but it was found generally that the exact causes of the decay were not known. Librarians were inclined to lay a good deal of the blame upon the bookbinder, who in turn blamed the leather-merchant for the quality of the leather, and the leather-merchant when questioned absolved himself of all blame by vaguely talking of new processes of tanning, even hinting as to the existence of some rapid process of transforming skin into leather by aid of acids and other chemicals.

After this, which I may term a preliminary enquiry, the Society of Arts took the matter up, determined that if possible the cause of the dissatisfaction should be investigated. To this end a very strong committee was appointed, under the chairmanship of Lord Cobham, and the members included representative bookbinders, librarians, leather-merchants, leather-manufacturers, and chemists who made a special study of the leather-trade. . . .

I need hardly enlarge upon the work of the first sub-committee, whose object was to justify the cause of the complaint, to find out which leathers appeared to decay most rapidly, and the conditions under which the books were kept, whether the decay was noticed as much in libraries lighted with gas or electric light, whether the bindings appeared to last longer when kept under glass cases, and, if possible, to note approximately the period at which general decay seemed to set in. This committee, in its work, visited nine of the most valuable and most important libraries in England, and found generally that most modern leather of all kinds showed signs of decay, and in many cases that bindings of not more than ten years already showed marked signs of deterioration and decay. The bindings of scientific works, proceedings of learned societies, on shelves, bound in calf, of which the date of binding could be very closely ascertained, were in many cases falling to pieces, and in several cases books bearing the dates of 1885, 1886 and 1887, could not be handled without the leather coming off in the form of dust. In another case the removal of the book from the shelf caused the back to come right off.

Generally speaking, as the report clearly states, most sign of decay was found in libraries where gas was used for lighting; and it was also found that, approximately, the most marked form of decay was noticed from 1860 onwards. It was certainly noticeable on books bound at any earlier period, but it became more general, comparing all libraries, about 1860. . . .

Turning now to the work of this second, or scientific, sub-committee, the problems before them were, therefore, of a definite nature. Having first convinced themselves of the almost universal tendency on the part of modern leather to decay, their work was to investigate the cause or causes of this modern decay, and to find out why books which were bound in the fifteenth to the early part of the nineteenth century were still in most cases in almost perfect condition. It was extremely unlikely that any change had taken place in the nature of the raw skins used. It was consequently taken for granted that the causes were to be found in some of the modern processes of leather manufacture. An examination of several pieces of old bindings revealed the fact that the bindings were, generally speaking, thicker than those of more modern date. A microscopical examination showed the fibres of these leathers to be in an upright condition, whereas in more modern leather this is not generally the case; the stretching and tight setting-out of the skin having a tendency to lay the fibres in a more parallel state. Another important factor was revealed by the chemical analysis, which showed that all the old samples of leather analysed contained less tannin in proportion to the skin-substance than was found in more modern bookbinding leather; in other words, it was evidently the custom in the eighteenth and nineteenth centuries to tan the skins in weaker liquors, with the result that the leather was lighter tanned than is the custom at the present time.

Further, and also another important factor was, that in most of the bindings examined which had stood the test of time the tanning material which had been used was in nearly every case either sumach or oak bark, and it was further noticed that in many cases where even fairly modern leather had stood for twenty or twenty-five years the tanning agent had been sumach. Here, therefore, there was indicated a special line of investigation likely to be productive of much useful information. Although sumach and oak bark are still used for the tanning of the better-class high-priced leather, very many skins are tanned with such materials as quebracho (a wood which comes from South America), larch bark, gambier, and mimosa bark, and thousands of dozens of sheep, goat and calf skins are sent over ready tanned from India. These latter are tanned with turwar bark (*cassia auriculata*). These are known in the trade as Persian moroccos, Persian sheep, and East India calf. Some of these skins are simply scoured, dyed, and finished; while the majority are stripped of the loose tannin by scouring in a weak alkaline bath, borax or carbonate of soda being used. As this treatment turns the skins an ugly dark-brown color they are put into a bath of weak sulphuric acid. When supposed to be thoroughly freed from sulphuric acid by washing in water, they are retanned with sumach, and afterwards dyed and finished in the usual manner.

In order to find out whether any special tanning material had or had not an advantage, and whether the tanning material, *per se*, was liable to cause decay or destruction of the leather, calf, goat and sheep skins were tanned out, one of each skin in each of the following tanning materials: pure sumach, pistacia lentiscus, tamarix, oak bark, myrobalanus, quebracho, mimosa bark, gambier, larch bark, chestnut extract, and oakwood extract. Two sets East India tanned goat, sheep and calf, one set washed, oiled and dried, the other set scoured, soured and sweetened and retanned in sumach as carried out in practice, were also prepared. When these skins were judged to be lightly but thoroughly tanned, one-half of each skin was removed from the tan liquor, and the remaining halves were left in the liquors, these being strengthened up with more tannin, so that the second halves were more fully tanned, as is most commonly the case in modern leather. The leathers so produced were rinsed through water to remove superfluous tan, allowed to drip, and when in a semi-dry condition were oiled lightly upon the grain surface, and hung up and dried in the usual manner. Portions of these skins are before you on the table. Pieces of each of these leathers were so fastened upon boards that one-half of the piece of leather was exposed, while the other part was carefully covered, so as to be protected from either light, heat, or the action of the surrounding atmosphere. In all, eight such duplicate sets were arranged, and were subjected to the following tests for thirty days: —

Board No. 1 was exposed to an ordinary direct sunlight. This was done in a large room facing south, and the tests were carried out during July and August.

The second board was exposed to the action of gas-light. A small cupboard was arranged, and a No. 5 ordinary fish-tail gas-burner was placed in the centre of the cupboard, and the boards so arranged round this that the leathers were about 18 inches from the lighted burner.

No. 3 board was arranged in a similar cupboard, and exposed to the light from an ordinary incandescent gas-burner.

[1] Extracts from a paper by Dr. J Gordon Parker, read before the Society of Arts and printed in the *Journal* of that Society.

No. 4 was also arranged in the same way, but in place of the gas-burner, a 16-candlepower incandescent electric lamp was used.

The fifth board was subjected to the fumes of burnt gas. To carry out this experiment a similar room was used 8 feet high and 6 feet square. On the floor of this room was placed an ordinary fish-tail burner, turned about half on, and the boards, with the leather fixed upon them, were hung on the ceiling. A maximum and minimum thermometer was also hung on the ceiling, and the room so ventilated that the temperature was not allowed to exceed 90° Fahr. I may add that this was the temperature noted on the top shelves of two of the libraries which were examined, so in this case the worst library conditions were imitated as closely as possible.

The sixth board was subjected to moist and dry air alternately. This was done by drawing a current of moist and dry air over the leather through a vacuum oven. The temperature was kept at 60–70° Fahr.

The seventh board was subjected to an atmosphere of carbonic-acid gas. This test was likewise carried out in an oven, the carbonic-acid gas being dried before it was allowed to enter the bath.

The eighth board was subjected to direct sunlight, but the leather was protected from the air by a sheet of glass being laid upon it. This was exposed at the same time and in the same room as board No. 1.

The leather after this treatment gave some most interesting and instructive results. It showed: —

1. That the leathers tanned with certain tanning materials were less affected than those tanned with other materials.

2. That the fumes of burnt gas appeared to act more strongly on all the leathers than any other agent.

3. That artificial light had only a slight effect upon the leather, provided it was protected from the products of combustion.

4. That direct sunlight and air appeared to have a very strong disintegrating action upon most of the samples, but when the leather was protected by a covering of glass the action was less intense.

5. Moist and dry air appeared to have no special deteriorating action. The same thing was noticed in the set exposed to carbonic-acid gas. The electric incandescent light appeared to have even less effect than either ordinary gas-light or the incandescent gas-burner, probably on account of the lesser heat evolved and the absence of products of combustion.

On examining all these sets side by side it was noticed that in each case the leathers tanned with sumach were the least affected of any, followed in regular rotation being less affected by myrobalanus, chestnut extract, oakwood extract, oak bark, gambier, larch bark, quebracho, pistacia and tamarix; and the worst set was the leather tanned with turwar bark, especially the sample which had been scoured, soured and retanned. Further, it was also noted that the samples of leather which had been only lightly tanned were less affected in each case than the samples which had been finished in stronger tanning material, and were thus more heavily tanned. . . .

It was our duty to give, if possible, some advice to librarians and others as to the preservation of books bound in leather, and Professor Procter undertook an elaborate series of experiments with glasses of various tints in order to find out whether the disintegrating effect of sunlight could be minimized by the use of lightly tinted glasses. His experiments were eminently satisfactory. He found that the violet or actinic rays which affected photographic printing-paper also affected the leather, so that any glass which would keep out the actinic rays could be recommended for the glazing of library windows. . . .

Before bringing this paper to a conclusion, I should like to refer to a fact that impressed us very forcibly, viz, the number of disguises under which the ordinary sheepskin masqueraded. We found books bound, nominally, in levant morocco, hard-grain morocco, straight-grain morocco, pigskin, calfskin, crocodile and alligator leathers, which leathers, on close microscopic examination, were found to be the ordinary common sheepskin, on which had been stamped, probably by electrotype rollers, the special grains and markings of the skins they were got up to imitate. In many cases both the bookbinders and the librarians had bought these leathers under the impression that they were buying the genuine article, the buyers having probably been tempted by the low price which would naturally be charged in a case of this sort.

WOOD-PAVING.[1]

TREATED wooden-block paving has been used in London for over thirty years on both her finest and most heavily-travelled roadways. Paris has nearly four times as many square yards of it in use as of asphalt. There had been laid in 1891, 484,000 square metres and in 1898, 1,165,000 square metres of wooden blocks, there being at that time 382,600 square metres of asphalt and 1,348,000 square metres of macadam.

Foreign growths of wood are, however, practically prohibited for use in America by reason of their large cost. To produce a pavement at moderate and justifiable expense a native wood must be used, so treated, if possible, as to harden its fibre, make it practically impervious to moisture, and not readily susceptible to the varying conditions of heat and cold. There is no gauge of durability by which the attempts to produce such results can now be judged. Practice has not yet demonstrated in this country what our natural products can create in the way of a permanent pavement of this character.

There were laid last year in Boston for experimental purposes, in the midst of the otherwise asphalted surface of a busy but lightly trafficked thoroughfare, two small areas of wooden blocks, 1,360 yards in all, treated by the so-called creo-resinate process. These areas were laid in the steepest grades thereof, and in one case for only half the width of the street, the other half being of asphalt, that the relative merits of the two might be compared.

This pavement was prepared and laid in the following manner: —

The blocks were uniformly 4 inches wide, 4 inches deep and 8 inches long, of long-leaf Georgia yellow pine, free from sap, loose or rotten knots, and with no second-growth timber allowed. These blocks were placed in an air-tight cylinder, and the dry heat was raised to 215 degrees Fahr., without pressure, for one hour, for the purpose of expelling moisture. The heat was then increased, pressure was applied, and the degree of both was raised gradually, in order to avoid injury to the fibre, during a period of two hours, until the heat had reached 285 degrees, and the pressure about 90 pounds, both being held at that point for one hour. The heat was then shut off, and the tanks allowed to cool gradually for one hour. At the end of this time heat had been reduced to 250 degrees, and pressure to about 40 pounds. The pressure was then blown off and the heat still further reduced. Vacuum was then applied until about 26 inches was reached; and while under vacuum the creo-resinate mixture was run into the cylinders at a temperature of from 175 to 200 degrees, and hydraulic pressure was applied, reaching 200 pounds per square inch, and kept at this point until from 21 to 22 pounds of the mixture per cubic foot had been absorbed. The liquid was then run off, and the wood placed in another cylinder, and milk-of-lime, at a temperature of 150 degrees, was run in, and hydraulic pressure of about 200 pounds was applied for one hour.

The blocks were laid, with the grain vertical, upon a foundation consisting of American-cement concrete 6 inches in depth, with a 1-inch cushion of clean, screened sand, and were driven tightly together at every sixth row. The joints were then filled with dry, screened sand, and the pavement rolled with a 5-ton steam-roller until the blocks presented a firm, uniform and unyielding surface. The joints were then filled with a creo-resinate mixture of road-pitch, heated to 300 degrees Fahr., and the whole covered temporarily with ¼-inch dressing of clean, screened sharp sand.

It is apparent, after a year's experience with this pavement, that it is satisfactory as so laid in every respect except with regard to slipperiness, and that, as so laid, an almost absolutely noiseless pavement was obtained, the surface of which, under use, became so unified that the joints were indistinguishable, and the pavement consequently slippery. No wear has yet been apparent. The surface remains perfect, and, in comparison with the asphalt adjoining it, is preferable in all respects, except that of slipperiness, in which, practically, it does not differ; and, upon the grade of 4 per cent at which it was laid, it has nothing to recommend it in this respect.

I have this year laid an area of 7,940 square yards upon a level street, in the same manner as above described, which I believe will be eminently satisfactory in every respect, and am about to lay, this fall, another area of 6,640 square yards upon a nearly level street, where I expect the same results; but the problem of a noiseless, non-slippery and permanent pavement, which can be laid upon grades exceeding 2 per cent, has not yet been satisfactorily solved. With the hope of more satisfactory results in this respect, however, I have laid upon a 3-per-cent grade an area of 2,000 square yards of wooden blocks, so recently put down as not to permit me to make any statement of the results obtained. This was laid from blocks prepared as above mentioned, differing only in shape and in the character of the joint. From each of the blocks, 4″ x 4″ x 8″, there was removed from one side, at the top, a section ¼ inch in thickness for the length of the block, and 1½ inches in depth. When these blocks were laid as above described, and driven closely, there was a ¼-inch opening, or joint, remaining, extending clear across the street with each width of block. These joints were filled with Portland-cement grout. It is my expectation that this material upon the surface of the street every 4 inches will remove the slippery conditions which would otherwise exist, and furnish better foothold for horses.

There is in my charge, as commissioner having the care, with a representative of the adjoining city of Cambridge, of those bridges crossing the Charles River and connecting the two municipalities, a bridge, called Harvard Bridge, having a roadway area of 11,425 square yards. This bridge was built in 1891, within an insufficient appropriation, and in a manner which has proved to be a falsely economical one. In order to diminish the cost, the structure was lightened, and designed only to carry a wooden floor of 4-inch deck and 2-inch sheathing. Traffic upon this bridge has rapidly increased, and it has been necessary for some years to resheathe it annually; and it has now become apparent that two resheathings each year will only suffice. As the deck of the structure now shows signs of decay, it has been decided to redeck this entire structure with a hard-pine deck, treated by the same creo-resinate process as are the blocks, and directly upon this the wooden-block pavement will be laid, closely driven, and without joints, and a contract for this work is now being executed by the United States Wood Preserving Company, of New York, which controls the creo-resinate process. What has for years had many of the characteristics of an uneven

[1] From a paper presented to the American Society of Municipal Improvements by Mr. B. T. Wheeler, ex-Superintendent of Streets, Boston, Mass.

corduroy roadway, caused by the rapid wearing of the sheathing-plank, will soon present an even, noiseless, smoothly-riding surface, which will not subject the two cities to the cost of annual repairs. Wooden blocks have therefore filled a unique place in furnishing a permanent and satisfactory pavement, placed upon a structure which was not designed to carry the load of any other form of permanent pavement known.

I was brought to the execution of this work by the experience of the city of Chicago in laying a wooden pavement — treated, however, by another process — upon the Rush-Street Bridge, which carried a large part of the freight traffic of an important railroad terminal, and which had required, therefore, many renewals annually of the wooden wearing-surface of plank. This pavement had been laid over two years and a half, I think, when I last saw it, and was still apparently in first-class condition. Wooden pavement has, therefore, it seems to me, a field peculiarly its own in replacing the plank surface of bridges in an economical and satisfactory manner.

The only question, aside from the desirability of laying such pavement upon steep grades, which I have already referred to, and which has not yet been satisfactorily demonstrated, is then one of durability, which time alone can determine; but the company which has laid this pavement has, for the protection of the city which I represent, given a good and sufficient guaranty to keep the same in condition satisfactory to the superintendent of streets for a period of ten years.

THE BOSTON SOUTHERN TERMINAL.

AS an example of the extensive and varied equipment and appliances of a large passenger-terminal, Mr. E. E. R. Tratman gives in the *Journal of the Western Society of Engineers* the following details of the Boston Southern Terminal, as furnished by the manager of the Boston Terminal Company: —

Station dedicated, December 30, 1898; operated, January 1, 1899. Total area of land, about 35 acres; covered by buildings, about 13 acres.

Main Station. — Length, maximum, 850 feet; width, maximum, 725 feet. Length, average, 765 feet; width, average, 622 feet. Area, 506,430 square feet. Area of awnings outside buildings, 46,000 square feet. Height from sidewalk to top of eagle, 135 feet. Height from sidewalk to top of flagpole, 200 feet.

Express Buildings. — Length, 712 feet; width, 50 feet.

Power Buildings. — Length, 569 feet; width, 40 feet.

Total length of buildings on street-front, 3,300 feet.

Train-shed. — Length, 602 feet. Width, middle span, 228 feet. Height over all, 112 feet. Width, two side-spans each, 171 feet. Total width, 570 feet. Trusses, cantilever, and 60 feet centre to centre.

Midway. — Area, 60,000 square feet; of connecting-roofs, 17,500 square feet.

Waiting room. — Length, 225 feet; width, 65 feet; height, 28½ feet.

Tracks. — Total length, about 15 miles; length under roof, 4 miles. Total number entering stations, 32; 28 on main floor and 4 in the shape of two loop-tracks in subway. Number through throat in yard, 8 for main floor; 4 for subway. Total weight of rail, 2,500 tons at 100 pounds per yard. Switches, double, slip, 34; single, power, 51; single, hand, 52; switches, single, total, 103. Frogs, rigid, 173; movable, 68; frogs, total, 241.

Interlocking. — Semaphore signals, high type, 109; dwarf, 28; total signals, 137. Levers in tower No. 1, 143; No. 2, 11; No. 3, 11. Signal lamps, electric, 182; signal bridges, 9.

Total number of trains using station, week-days, 750 to 780; Sundays, 220.

Passengers carried by these trains, per annum, about 25,000,000.

Number of 65-foot passenger-cars that can be set against platforms on main floor, 344; of these, 252 will be under one roof.

Number of 40-foot passenger-cars that can be set against platforms in subway, 60.

The seating-capacity of the above cars is 28,104 people.

Capacity of express-yard, against platforms, 26 express-cars, 12 mail-cars.

Total capacity of mail and express yard, 116 cars.

Capacity of other yard-tracks, 93 cars.

Making a grand total of 613 cars.

Cars to and from the station, daily, about 3,000.

Mail and express cars to and from express-buildings, daily, 150 to 350.

Numbers of movements through throat in yard for main floor, 3,000.

The clock-dial in tower is 12 feet in diameter; and the granite eagle is about 8 feet high, 8 feet wide, and weighs 8 tons.

Number of pieces of baggage handled, annually, about 1,500,000.

Number of parcels handled in parcel-room, annually, about 350,000.

Number of tons of mail handled, daily, about 150.

Number of persons employed at station, including office-forces of the different railway and express companies, trainmen, and railway mail-service employés, 2,500.

Capacity of ice-plant, daily, 25 tons.

Capacity of gas-plant, daily, 120,000 cubic feet.

Arc-lights	235	Draught-fans	2
Incandescent lights	6,000	Electric-elevators	25
Incandescent lights in main waiting-room	1,200	Water-closets	207
Water-metres	20	Urinals	177
Storage-vaults	29	Shower-baths (for trainmen)	6
Fire-supply outlets	106	Set-bowls	143
Office-rooms	215	Sinks	26
Window-shades	1,000	Toilet-rooms	50
Sash-weights, pounds	209,000	Ticket-windows (including subway)	36
Pintsch gas-connections	150	Baggage-room doors	90
Steam-heat connections	56	Express-building doors	71
Air-brake test-connections	48	Clocks, electric, self-winding	77
Steam-boilers	11	Fire-alarm boxes	3
Electric-generators 225 KW	4	Auxiliary-stations	21
Motor Generator	1	Watchman's time-detector	1
Electric-motors	50	Registering-stations	33
Compressors	10	Fire-risers, with 106 outlets	31
Steam-engines	17	Miles piping	50
Heating and ventilating fans	19	Mile, 8-inch circulating-pipe	5-8
Travelling-crane	1		
Steam-pumps	13		

APPROXIMATE AMOUNT OF MATERIAL USED TO COMPLETE THE WORK.

Spruce piles	43,816	Cubic feet cut-stone for building, or 500 carloads	200,000
Common brick	15,100,000	Cubic yards concrete	74,000
Medium brick	487,000	Cubic yards stone masonry	32,000
Enamelled brick	846,000	Barrels Portland-cement	75,000
Barrels coal-tar pitch	8,000	Barrels Rosendale-cement	20,000
Pounds tarred paper	850,000	Barrels prepared asphalt	6,500
Pounds solder	16,000	Feet, B. M., yellow pine	5,000,000
Square feet wire-glass	150 000	Acres gravel roofing	10
Pounds putty to set same	40,000	Square yards waterproofing	56,000
Acres painting (reduced to a single coat)	200	Pounds sheet copper for roof-trimmings	425,000
Pounds, or 15,000 tons, steel, equal to about 1,200 carloads	30,000,000		

ILLUSTRATIONS

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

A COMPETITIVE DESIGN FOR THE GEOGRAPHIC BUILDING, WASHINGTON, D. C. MESSRS. TOTTEN & ROGERS, ARCHITECTS, PHILADELPHIA, PA.

DOORWAY TO HOUSE OF FREDERICK AYER, ESQ., NO. 395 COMMONWEALTH AVE., BOSTON, MASS. MR. A. J. MANNING, ARCHITECT, NEW YORK, N. Y.

FIRST PRESBYTERIAN CHURCH, INDIANAPOLIS, IND. MR. F. R. COMSTOCK, ARCHITECT, NEW YORK, N. Y.

THE AGRICULTURAL BUILDING FOR PURDUE UNIVERSITY, LAFAYETTE, IND. MESSRS. R. P. DAGGETT & CO., ARCHITECTS, INDIANAPOLIS, IND.

[The following named illustration may be found by reference to our advertising pages.]

HOUSE IN THE RUE CHAMPIONNET, PARIS, FRANCE. M. J. VALENTIN, ARCHITECT.

THIS plate is copied from *La Construction Moderne.*

[Additional illustrations in the International Edition.]

HOUSE OF FREDERICK AYER, ESQ, NO. 395 COMMONWEALTH AVE., BOSTON, MASS. MR. A. J. MANNING, ARCHITECT, NEW YORK, N. Y.

IN carrying out his design the architect had the benefit of association with Mr. Louis C. Tiffany, who designed the exterior mosaic-work, which makes the house so notable on a Boston street, as well as decorated the interesting main staircase, which we hope to illustrate at a later day.

ENTRANCE TO THE COLUMBIA ELEVATORS BUILDING, NEW YORK, N. Y.

THE VICTOR COUSIN DOOR: THE SORBONNE, PARIS, FRANCE.

SIDE DOOR: ST. NICHOLAS DU CHARDONNET, PARIS, FRANCE.

LA PORTE DU BACHELIER: ST. SERNIN, TOULOUSE, FRANCE.

PORTE COCHÈRE IN THE RUE DU BAC, PARIS, FRANCE.

COMMUNICATIONS

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

THE RELIABILITY OF ARCHITECTS.

"ARCHITECTS' FEES. — Lowell is the latest city to discover that an architect may not be a reliable person. Lowell asked an architect to plan a building which would cost less than $30,000. The building, as planned, called for something in the neighborhood of $45,000. The question of paying the architect's bill has been discussed publicly in Lowell, and it is a matter for that city to settle for itself. The incident justifies the question, however, whether it is not time to ask that architects be bound by the same rules which apply to other business-men. An agent who agrees to buy a house for $25,000 cannot collect for offering instead a house that must cost $50,000 — unless the employer consents to such a charge. No matter how widely an architect's performance differs from the original estimate given him, he never fails to collect his fee! Is that perfectly business-like?"

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — The above editorial is from the Boston *Advertiser* of November 27, and it seems to me to warrant a somewhat extensive reply. At first blush one would suppose that the day had long gone by for any one, of ordinary intelligence, to be guilty of promulgating an opinion of such erroneous and pernicious effect, and had it appeared in some country newspaper, unfamiliar with large affairs, it would not merit notice.

Unfortunately, a large portion of the public holds the views of the writer of said editorial; unfortunately so, both for the public and the architects; unfortunately so, because a large number of the profession are responsible for it; (*a*) because of a misapprehension of the true function of the architect and an over-anxiety to obtain work (generally the fault of the younger members); and (*b*) in some cases, I regret to say, of deliberate intent to secure work under false pretenses, or of inexcusable ignorance on the part of older members.

There is not a thoroughly equipped, well-trained architect in the country who does not know that an architect can not determine what the cost of a building will be, except approximately, and as a *professional opinion*, and I propose to show why this is so, in the interests of clients as well as of the profession.

(1) An architect is not a contractor; he is not a *guarantor;* he *is* the *professional adviser* of his client, the same as a lawyer or doctor.

If a client goes to a lawyer and asks him to guarantee a successful issue to a suit, the lawyer will probably laugh at him for his pains; and if the lawyer says he will so guarantee, I opine that the average sane client won't give much for that lawyer's opinion or services. On the contrary, a client retains a lawyer because of his experience and brains, and leaves "law points" to his counsel; he does not tell his counsel how he is to try the case, and, if the case is lost on the first trial, it not infrequently is carried to a higher court; and if finally lost (one or the other side loses in law), the lawyer expects to be paid for all of his services, and usually is.

No sane man who is ill, or has one of his family ill, thinks for an instant of calling in a doctor and asking him to guarantee a cure; he takes the doctor's advice, and he takes the medicine, and pays for both, whether patient lives or dies. But, when it comes to the architect, a client turns right about, and expects the architect to do the impossible. Why is this so?

(2) In the majority of cases — a large majority — the excess of cost is directly attributable to the *client*, not to the architect (in some cases, due to lack of courage or knowledge in the architect to tell the client that he can not have so and so, because it will cost more), because as the plans proceed the ideas and wants of the client expand.

It may be said that an architect should advise a client that excessive requirements will involve extra cost. Well, admit this for the sake of argument; yet, it is reasonable to suppose that a client of average intelligence must know that, if he adds to his original requirements, the cost will be increased, *without the need of being told so.* One does not order 10 pounds of sugar of his grocer, and then order 5 pounds of tea, and expect the grocer to tell him that the tea will be charged for.

(3) An architect can not control the estimates — bids — of contractors, except in some cases to a quite limited extent, and then only in proportion to his practical knowledge of construction and of current market-prices for wages and materials; and such market-prices fluctuate sometimes from day to day, and frequently advance 10 to 20 per cent during the time in which plans are being prepared.

It is a truism that the "bids" of contractors do not agree with their approximate estimates in nine cases out of ten. Such being the case, why should an architect be expected to guess or figure more accurately than a contractor?

(4) Furthermore, a selected number of A1 contractors will not estimate any two jobs on any analagous basis. The same contractor will not estimate two jobs of similar character on the same basis; he is likely to be low on one and high on the other — a common fact. The variations of contractors' bids range all the way from 10 to 100 per cent, and the average variation is 20 to 25 per cent. This I can substantiate by incontestable evidence and figures, for I have quite an interesting collection.

The analogy in the *Advertiser's* editorial, of a broker buying a house, is pure sophistry and wide of the mark, and has no comparable ground with an architect's planning a building. If a broker is instructed to buy a building for $25,000 he has no right to pay $26,000 or more for it, for he absolutely controls the deal he is authorized to make. Not so with the architect. The client usually dictates what the plans and the building shall be, regardless of consequences, forgetting what his first idea of cost was, or that he has added 10 to 50 per cent to the cost, and the architect is subject to prices — bids — to be made by parties he can not control. The only comparable ground is when the client says to the architect, "Build me a house, a store, a church, or other, not to cost over a certain sum, and *does not dictate to the architect in any way whatsoever* what the plans shall be, what the dimension, the accommodations, or materials or style are to be, the architect being left *absolutely free to use his judgment*, in which case, if the architect plans a building which costs more than the stipulated sum, he is at fault; but this is not the way of clients; quite the reverse.

(5) My observation and experience convince me that the average mean "bid" is just about right; every dollar below the mean is so much to the client's advantage.

Another element to be considered in regard to questions of cost is, that an architect's opinion as to cost is usually given or based on "*preliminary* sketches," before the client has well formed ideas as to what he wants, and before the architect's conception of what the client wants has resolved itself into a well-studied concrete whole.

(6) The best that an architect can do at any time, and the only thing he should do in honor, is to give his honest *professional opinion* as to the fair *market-value* of the proposed work. What builders may "figure the job at" he is not responsible for, and a knowledge of fair *market-value* can only be attained by years of experience, and even then the market will get the better of him sometimes.

The best thing for a client to do is to retain the services of an architect of experience and competency. If the client chooses to select a young architect of limited experience, often for a line of work with which the architect has had no adequate training, then the client has no one to blame but himself if results are not satisfactory. It may be said this is hard on the young architects. Possibly! Nevertheless, we all have to creep before we can walk, and I venture to say that any "old architect" looks back to the first five to eight years of his experience with wonder that any client had the courage to trust him with "a job." And on the other hand, experience has taught the "old architect" that it is risky business to say "just what a building will cost," except, for instance, in the case of an office-building or hotel, which can be approximated within reasonable limits.

(7) Further "guaranteeing the cost of a building" is a premium on dishonesty — nothing short, of that; for, if it has no other drawback, it puts a restraint on the unbiassed judgment of an architect, which should be the first duty to a client, and which the client should value most above all things, and there are few who do not know the evils of practice which come, and which are forced, upon the architect who "guarantees the cost." Self-preservation is the first law of nature, and it is but natural for the architect who "guarantees the cost" to think of his own pocket first, and that of his client last. Architects should not be supposed to have more of the angelic temperament than other men.

Another consideration which should have weight with the public — with clients — is that the compensation of an architect for services rendered is wofully inadequate and far below that of any "wage" for anything like equal responsibility or demands. (I do not refer to the pirates of the profession who cut under the established schedule and standard of charges and *practice;* unfortunately, the number of this class is large, and a menace to the upholding of true ethics. "What!" some one rises to remark. "Five per cent on the cost of a building small pay?" This reminds me of a story once credited to the late H. H. Richardson. When asked by a committee if 5 per cent on a large building was not rather a big fee for the work, Mr. Richardson is said to have replied, "Gentlemen, am I to understand that you consider the paltry sum of $125,000 too much for doing this work?" And Mr. Richardson was right.

I venture to say that the average compensation — profit — to architects on a 5-per-cent basis, taking all kinds of work, by and large, does not exceed five-sixteenths of the total amount; that is probably a very liberal proportion. Let us take, for example, a building which costs $100,000, the architect's commission being 5 per cent, or $5,000. The architect's profit (for his own services and pocket, with due care as to office-expenses and reasonable amount of work from draughtsmen) will be not in excess of $1,562.50, and this for work covering more or less of constant care and forethought for a period of two years, to say nothing of the responsibility, or $781.25 per year — and for what? For a universality of, an all-inclusive, knowledge, an omniscience of judgment and a degreee of accuracy that is not expected or required of any other man, professional, or otherwise.

Again, for example, let us take the amount of work reported for the New England States during the past two years (it was considerably less during the panic years after 1893), which amounts, all told,

to about $160,000,000 per year. There are, probably, not less than one thousand architects in New England. (I do not know the exact number.) Of the $160,000,000, it is safe to say that one-third at least does not come within the practice of architects, which leaves about $106,000,000 of work for architects. It is also safe to say that the average of per cent paid to architects on this amount of work does not exceed 4 per cent (because of a too-prevalent practice of "cutting rates," especially in the smaller cities, and also too much so in the principal ones). Four per cent on $106,000,000 equals $4,240,000, and five-sixteenths of this equals $1,325,000, which divided among one thousand architects gives $1,325 as the average compensation to an architect.

In illumination of this princely average profit, I recall two commissions I have had in past years; one for a house costing about $22,000, on which my accounts show a loss of $16 over and above a commission of $1,100; the other a public building costing about $80,000, on which my accounts show a loss of over $1,200; so that on those two "jobs," I not only received no compensation for my brains and responsibilities, but was also out of pocket over $1,200.

There are, if I remember rightly, about eight thousand architects in the United States, and I venture to say that the average yearly income does not exceed $2,500 to $3,000, and that of the great majority does not exceed $2,000, and many of them are honestly endeavoring to serve their clients faithfully and struggle along on $1,000 to $1,200; and for this compensation the *Advertiser* and too many clients expect an architect to "*guarantee the cost.*"

JOHN LYMAN FAXON.

NOTES AND CLIPPINGS

ELECTRO-CHEMICAL WORKS AT NIAGARA.—The *Electro-Chemist* gives the following interesting data: The present total output of electricity at Niagara is about 50,000 horse-power; of this no less than 23,200 horse-power is consumed in electrolytic and electric-smelting operations. This power is distributed as follows: —

	Horse-power.
Electrical Lead Reduction Company	500
Acheson International Graphite Company	1,000
Pittsburgh Reduction Company	5,000
Carborundum Company	2,000
Matthieson Alkali Works	2,400
Niagara Electro-chemical Company	500
Ampère Electro-chemical Company	300
Union Carbide Company	10,000
Oldbury Electro-chemical Company	1,000
Roberts Chemical Company	500
Total	23,200

Cassier's Magazine for May gives some interesting statistics in connection with these works. The Electrical Lead Reduction Company reduce lead from its sulphide in the form of sponge, principally for the manufacture of litharge. The original alternating current at 2,200 volts is used for induction motors, which in turn drive direct-current dynamos which generate current at 100 volts. (See *Electro-Chemist and Metallurgist*, i. p. 32.) The Acheson International Graphite Company convert anthracite into graphite in the electric-furnace. The current is used at 80 volts pressure. (See *Electro-Chemist and Metallurgist*, i. p. 89.) The Pittsburgh Reduction Company, it is needless to say, extract aluminium from bauxite by the Hall process. (See *Electro-Chemist and Metallurgist*, i. pp. 2, 10.) The two-phase alternating current, which enters the works at 2,200 volts, is converted first to 130 volts and then by rotary converters, each of 600 kilowatt capacity, to direct current at 160 volts. The Carborundum Company produce silicon carbide in 110-volt alternating-current electric-furnaces. The Matthieson Alkali Works transfer the 2,200 volts two-phase current into direct current at 230 volts. They produce chloride-of-lime and caustic-soda by the Castner process. The Niagara Electro-chemical Company convert their current into direct at 165 volts for the production of sodium and sodium-peroxide from caustic-soda. The Union Carbide Company work their electric-furnaces (200 horse-power each) at 110 volts and 25 alternations. According to *Cassier*, this company probably uses more electric-power than any other one factory in the world. The Roberts Chemical Company use direct current at low voltage for the production of caustic-potash, etc.

CEMENT-WASH FOR PROTECTING IRONWORK. — Coatings of cement have been employed by certain railway companies in France for some years past, to protect the metallic portions of bridges crossing their lines from the rapid destruction to which such parts are liable by reason of oxidation, through being continually exposed to the action of steam and gas, products of combustion escaping from the locomotives. A method of applying the cement which is used in Austria, and is highly spoken of, is described in *La Revue Technique*. It consists in brushing down the ironwork with a leather broom, damping it with a white-wash brush, and afterwards applying two coats of Portland-cement wash made rather thick, and having added to it a proportion of fine sharp sand. At Zeebrugge, in Belgium, where a deepwater harbor is now in course of construction, a portion of the pier of 300 metres in length is being formed of openwork, and the steel piles of this part are covered with a coating of semifluid cement-mortar, applied by means of an apparatus worked by compressed-air, the piles having first been subjected to a preliminary cleansing by means of a sand-blast projected by the same air-pressure apparatus. — *Stone Trades Journal.*

PERHAPS THE OLDEST ORGAN IN AMERICA. — The organ in the chapel of the Episcopal Church on State Street in Portsmouth is to be taken to Boston by a piano firm to be placed on exhibition, the organ being the oldest in America. The organ was brought to this country from London in 1713 and placed in King's Chapel, Boston. While it was in Boston, Benjamin Franklin was the organist. It remained in Boston until it was sold to Newburyport some eighty years afterward, and in 1836 it was purchased by the Rev. Dr. Charles Burroughs and presented to the chapel in Portsmouth. — *Manchester (N. H.) Union.*

ALUMINIUM NAILS.—After many unsuccessful experiments and trials an alloy of aluminium has been made with which nails, staples and tacks can be made to compete with copper. Among other advantages claimed for the new material is that it is not affected by the weather and will not deteriorate, as in laying roofs, lining tanks, etc. As the alloy is non-corrosive and non-poisonous, the new nails ought to find favor among makers of refrigerators and other articles used for food-storage. When the difference in point of number and weight is taken into consideration, it is seen that aluminium nails are about four cents a pound cheaper than copper nails. It is not intended to put them in competition with ordinary steel nails. — *Hardware.*

LIFTING BY MAGNETS. — The most important employment of the magnet in the mechanical industries is in lifting and handling such masses of metal as ship-plates, boiler-plates, and parts of machines which it would otherwise be difficult to get hold of. It effects an average economy in time and cost of handling, stacking, loading and unloading of from 50 to 75 per cent. To meet the possible danger that from any cause the current from the dynamo might be cut off, causing the magnet to drop its load, it is usual in well-appointed plants to install a storage-battery, which effectually guards against such accident. In handling billets and material of convenient shape a number of pieces may be picked up at one time. The same is true of thin plates. The type of magnets used in most American works have a lifting-capacity of 5 tons. It makes a stranger nervous to see them at work, and he generally does not need to be reminded that unless his life is insured at its full value he would do well to stand from under. But slings and chains break under loads quite as often as magnets drop their loads by accident and in wrong places. — *Boston Transcript.*

DISCOVERY OF ROMAN ANTIQUITIES IN GERMANY. — According to the accounts from Berlin, the new work on the canal at Trèves brings to light some relic, almost daily, of Roman antiquity. A short time ago a magnificent tesselated pavement was discovered at a depth of 4 metres. The portion already laid bare shows two beautiful medallions, the colors of which are still vivid. The first represents a woman holding a vase in one hand and a spear in the other. The second medallion shows two lions in the act of springing. The pavement, which is in a good state of preservation, will be removed to the Provincial Museum. The Imperial German Archæological Institute is about to form a special committee for promoting archæological researches in those parts of the German Empire which were under the Roman dominion. It will consist of the General Secretary and two other members of the Archæological Institute, a Director, three members to be appointed by the Imperial Chancellor, and six others appointed by the Governments of Prussia, Bavaria, Würtemberg, Baden, Hesse, and Alsace-Lorraine, respectively. — *N. Y. Times.*

THE SAND-BLAST FOR CLEANSING STRUCTURAL IRONWORK. — The best means of protecting structural ironwork, such as railway-stations, bridges, escapes, due to the action of the elements and to the corrosive influences of the gases emitted from locomotives, have been earnestly sought by engineers, and there is yet much diversity of opinion among them on the subject. Thus far the only method pursued is that of systematically keeping the ironwork of these and similar structures protected by repeated applications of paint, the material used for the purpose being either oxide-of-iron or red-lead in linseed-oil. The deterioration of these coatings, however, is so rapid that constant watchfulness is required to keep the metal beneath free from rusting. The trouble arises partly from the gradual cracking of the paint-film, which allows the penetration of moisture and corrosive gases to metal surface, causing the formation of rust and the lessening of the adherence of the paint, and partly to chemical changes in the paint-film itself by the absorption of sulphurous gases. From these causes principally the frequent renewal of paint on exposed iron structures is found to be a necessity to preserve their integrity, and the nominal cost of this sort of work to the railroad companies is a very considerable item. Numerous investigations have been undertaken with the view of finding some substitute for the paints and oils usually employed for the purpose, or to secure their better adherence and greater durability, but thus far without substantial results. The overhead ironwork of one of the stations of the Manhattan Elevated Railroad in New York affords a conspicuous example of what has been stated. It was found that the metal of this structure is so strongly and rapidly corroded by the sulphurous gases of the locomotives that the yearly renewal of the paint with which it was coated was insufficient to preserve it. It was accordingly determined to make an exhaustive series of trials of the most approved paint compositions that could be found in the market. Some eighteen different compositions were applied to different portions of the structure, and their effects as protective coverings are to be closely observed. The specially interesting feature of these trials, however, is the fact that the sand-blast was used for the purpose of removing the old paint and thoroughly scouring the metal before applying the new coatings. The object of this preliminary treatment was to obtain a clean metallic surface, to which the paint would adhere as perfectly as possible. The result of this operation has thus far not been made public. — *W. in the Journal of the Franklin Institute.*

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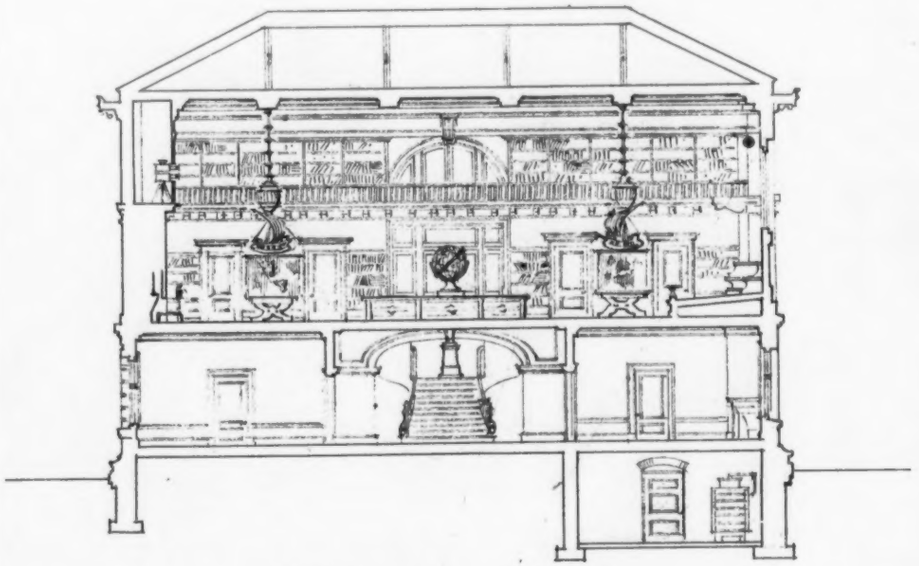

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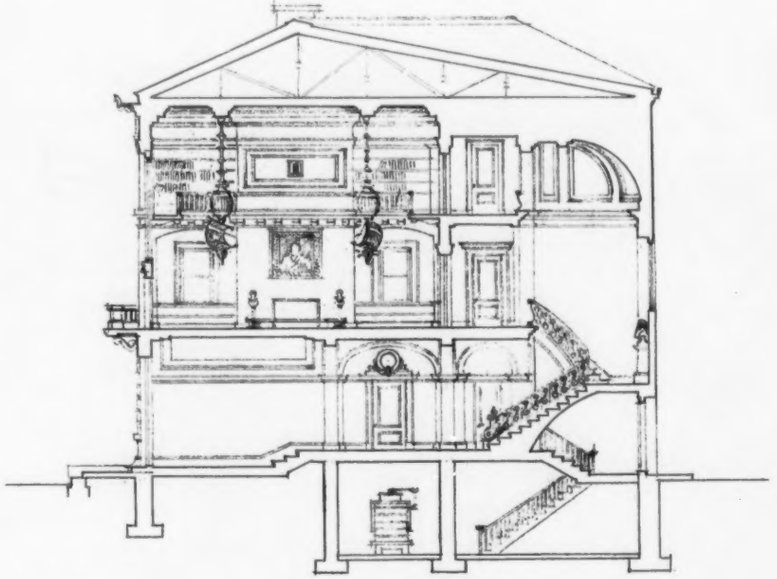

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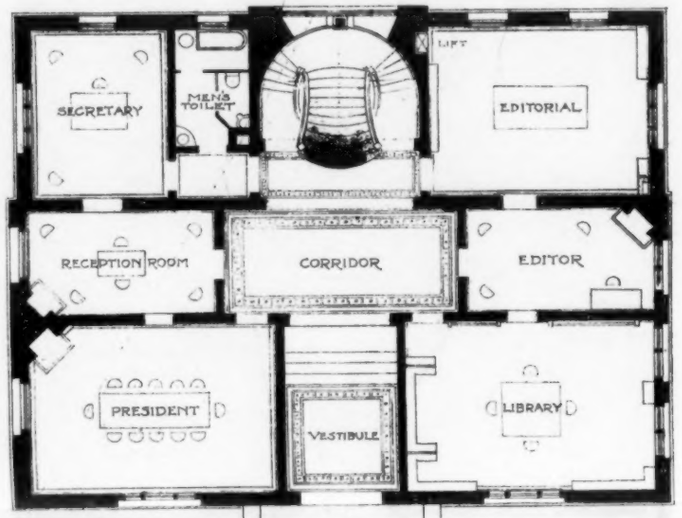

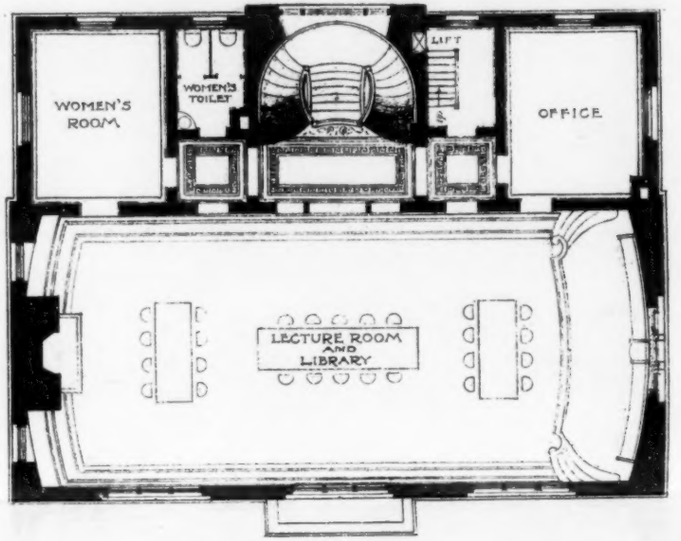

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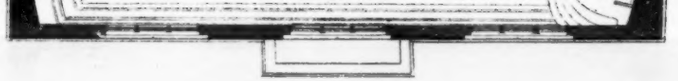

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TOTTEN & ROGERS ARCHITECTS.

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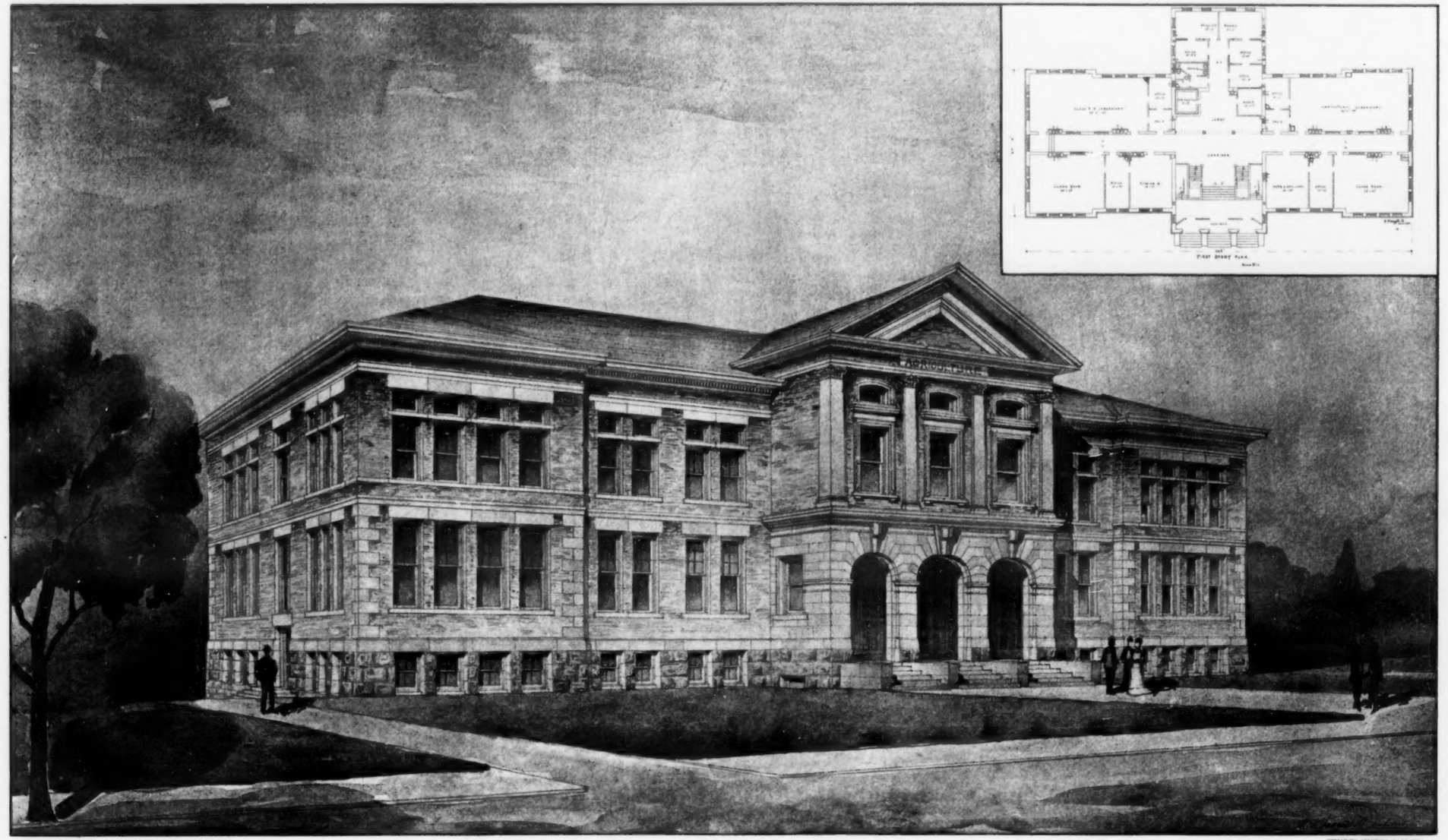
Dec, 21, 1901.
No. 1258



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Dec. 21, 1901.
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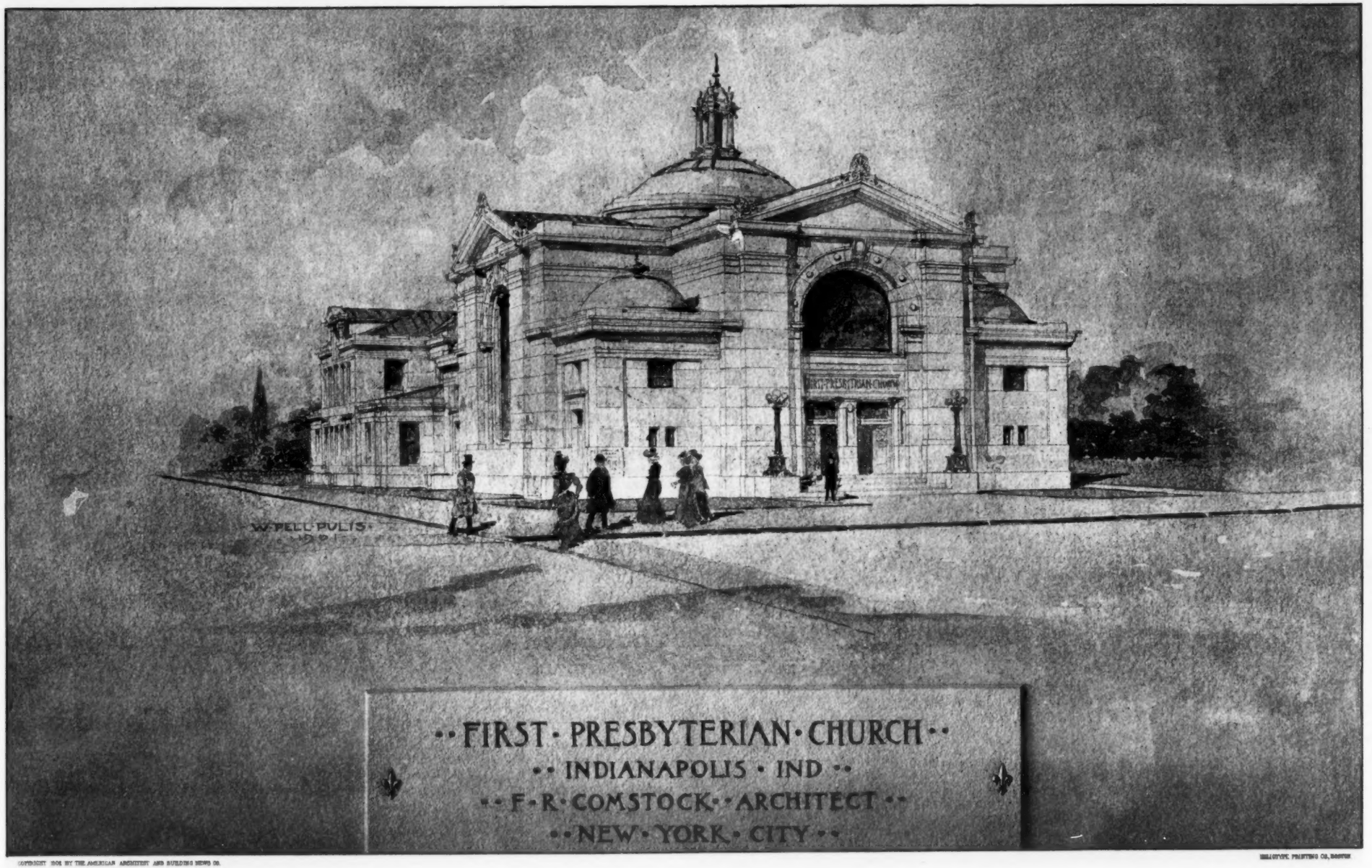

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The American Architect and Building News

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Topographical Index of Advertisers.

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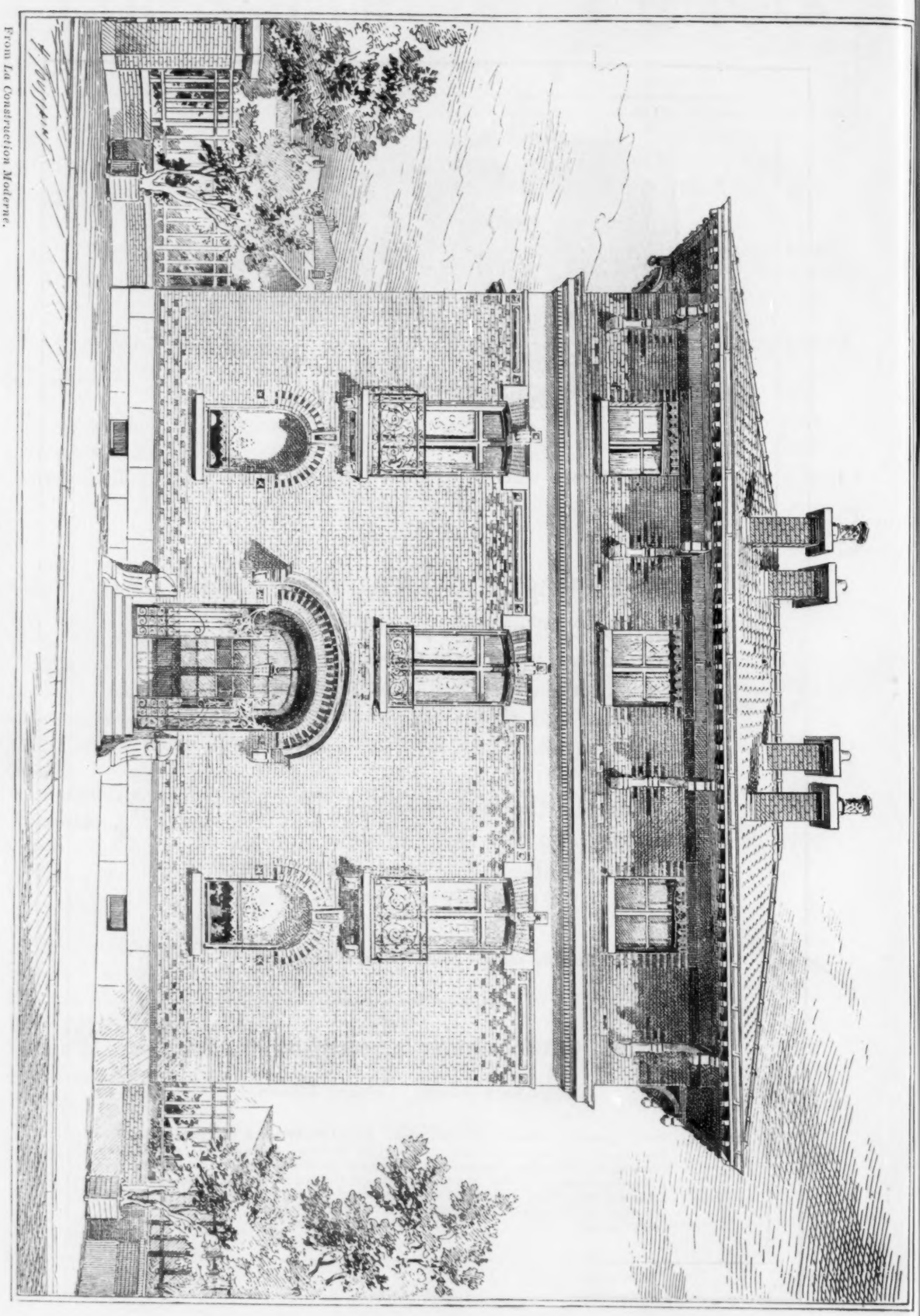

From *La Construction Moderne.*

HOUSE IN THE RUE CHAMPIONNET, PARIS.

M. J. Valentin, Architect.

The American Architect and Building News

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ARCHITECTS' REMOVALS, Etc.

MR. AUGUSTUS N. ALLEN has removed his offices from 35 E. 58th St. to Windsor Arcade, 5th Ave. and 47th St., New York. 1357

MR. J. E. ALLISON and Mr. O. M. Topp have formed a co-partnership under the firm name of Allison & Topp, with office at 806 Lewis Building, Pittsburgh. 1356

WANTED.

DRAUGHTSMAN. — Wanted, an experienced architectural draughtsman. A permanent position and good salary to right man. Address Liebbe, Nourse & Rasmussen, archts., Des Moines, Ia. 1359

WANTED.

SUPERINTENDENCE. — Architects can secure for regular or occasional superintendence and inspection and report on the condition of work Winthrop Alexander, 52 Kilby St, Boston. t.f.

BUILDING INTELLIGENCE.

(Reported for the American Architect and Building News.)

[*Although a large portion of the building intelligence is provided by their regular correspondents, the editors greatly desire to receive voluntary information, especially from the smaller and outlying towns.*]

ADVANCE RUMORS.

Aberdeen, S. D. — The Brown County Commissioners have selected Kinney & Detweiler, of Austin, Minn., to prepare plans for a $65,000 court-house.

Ann Arbor, Mich. — The University of Michigan is to erect a $100,000 building for the engineering department.

Apponaug, R. I. — Work will commence at once on the foundation of three new buildings in addition to the present plant of the Apponaug Print Works. The buildings to be erected are two of brick and one of wood. It will probably be several months before the new buildings will be ready for operation.

Atlantic City, N. J. — Great interest is taken here in the bill reintroduced in Congress by Representative Gardner appropriating $200,000 for the purchase of a site and the erection of a Federal building here. It is thought that if the measure has the support of Senators Sewell and Keen and Representative Loudenslager there will be a good prospect of its passage.

Augusta, Ga. — Frank P. Milburn, Columbia, S. C., will prepare plans for a $150,000 union depot to be erected here.

BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

Berkeley, Cal. — Plans have been drawn for a stone residence to be erected on the Ridge Road for Mrs. Phebe A. Hearst.

Birmingham, Ala. — Plans have been prepared by Stone Bros. & Weston for a ten-story office-building to be erected at 1st Ave. and 20th St.; cost, $200,000. Owner, W. H. Woodward.

Boston, Mass. — This city will erect a brick and stone bath-house for use during the entire year at a cost of $50,000. Commissioners are now considering available sites in the North End. Architect will be selected without competition and plans will not be started for some months.

Burlington, Vt. — The Lumiere North American Co. will erect at Howard Park a plant for the manufacture of photographic dry plates and materials; cost, about $100,000. The main plant is at Lyons, France.

Clarksburg, Md. — R. T. Lowndes will rebuild his woollen mill, recently destroyed by fire; cost, $25,000. Construction to begin at once.

Cleveland, O. — It is reported that the Salvation Army will erect a $30,000 citadel at Erie and Eagle Sts.

Colorado Springs, Col. — Plans have been prepared by T. P. Barber, Bank Building, for a three-story brick business block, 50′ x 175′; cost, $30,000.

Columbus, O. — Plans have been drawn by David Riebel, Eberley Block, for a $25,000 structure for A. G. Grant, to be built on Bryden Road.

Council Bluffs, Ia. — Groneweg & Schoesning will erect a three-story brick wholesale warehouse, at Broadway and 9th St., to cost $40,000.

Dawson Springs, Ky. — A $50,000 hotel will be erected by Dr. J. V. Hayden, Salem, J. E. Hays, Geo. M. Price, W. J. Hanby and B. R. Kuykendall, of this place.

Dedham, Mass. — A two-story brick and stone school-house is to be erected on Cedar St., Oakdale District, costing $50,000, after plans by Richardson & Driver, Boston.

Denver, Col. — Plans have been drawn by W. E. Fisher, of Fisher & Huntington, for the office-building and club-house which the Pacific Jurisdiction, Woodmen of the World, will erect on Tremont St., at a cost of $25,000.

Des Moines, Ia. — The local plant of the National Starch Co. was destroyed by fire with a loss of about $250,000; covered by insurance. It is understood the company will rebuild without delay.

Duluth, Minn. — The Knudsen-Ferguson Fruit Co., will erect a three-story brick and stone structure, 50′ x 110′; cost, $25,000.

F. A. Patrick & Co., wholesale dry goods dealers, will erect a new wholesale warehouse at 5th Ave., W., and Commerce St. It will be of stone and brick, seven story, 75′ x 125′; cost, about $100,000.

Escanaba, Mich. — The Catholic Society will erect a handsome church to cost, with the site, $50,000.

BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

Eureka Springs, Ark. — Herbert C. Chivers, Wainwright Building, St. Louis, Mo., has drawn plans for a $60,000 edifice to be erected by the Baptist Church.

Frankfort, Ky. — Plans have been prepared for a new capitol building to cost $1,000,000.

Harrisburg, Pa. — Addison Hutton, 400 Chestnut St., Philadelphia, has made designs for additions to the State Hospital for the Insane. Specifications call for two new ward buildings, kitchen and a mortuary building; cost, $150,000.

Helena, Mont. — It is reported that on November 30 fire destroyed the Peck-Montana concentrator, causing a loss of $160,000. Plant was owned by the Missouri Power Co. and the Helena Livingston Co. It will be rebuilt.

Jersey City, N. J. — Mayor Hoos has signed the resolution providing for a new school-house in the 3d Ward.

Little Rock, Ark. — The Choctaw Railroad Co. will erect an office-building at 2d and McLean Sts., at a cost of $100,000.

Logansport, Ind. — The First Presbyterian Church will rebuild the church recently damaged by fire; cost, $25,000.

Los Angeles, Cal. — Competitive designs will be called for by the Board of Supervisors for a new system of hospital buildings for Los Angeles County; total cost, $200,000.

Ludington, Mich. — Plans have been completed for a $30,000 church for St. Simon's R. C. congregation.

Lufkin, Tex. — O. H. P. Rudesill & Son, Houston, have prepared plans for a $40,000 two-story court-house for Lufkin, Angelina County.

Marshalltown, Ia. — The Warfield-Pratt-Howell Co. contemplates the erection of a new warehouse at a cost approximating $100,000.

McKeesport, Pa. — The School Board has decided to erect a $40,000 school in the 10th Ward.

McKees Rocks, Pa. — It is reported that the Fort Pitt Malleable & Gray Iron Co. has purchased ten acres of land on which a mill for the manufacture of castings will be erected. The plant will cost $150,000.

Medford, Mass. — Plans are in preparation for a 2½-story frame residence to be built on Iona St., near Humphreys Sq., for J. E. Wilber. Heating, hot air. Roofing, shingled. Cost, $9,000. Contracts not placed for any portion of work or materials needed.

Mexico City, Mex. — Stearns & Castor, Stephen Girard Building, Philadelphia, Pa., have completed plans for a Lutheran Church to be erected here; cost, $75,000. It is stated that most of the material to be used in the construction will be purchased in the United States.

Missoula, Mont. — It is stated that the Catholic Sisters have let the contract to Stinger & Campbell to erect an addition to the academy, three-story, 50′ x 80′, of brick. Morse & Benoit will do the stone work. J. L. Chevigny, architect. Cost, $20,000.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Moundsville, W. Va.—The Rubel Mfg. Co. is about to erect a $150,000 plant to manufacture fine paper and stationery. This company has a paper mill in New Jersey.

Newark, N. J.—The plans of Cass Gilbert, 1123 Broadway, New York, N. Y., have been accepted for the Essex County Court-house; cost, $950,000.

New Bedford, Mass.—Work is well under way on the 3 brick and stone manufacturing buildings in process of erection here for the Soule Mills Corporation, from plans furnished by Lockwood, Greene & Co., mill architects, 98 Federal St., City. B. F. Smith & Co., Mason St., Pawtucket, R. I., are general contractors.

New Lewisville, Ark.—Plans have been drawn by F. W. Gibbs, of Little Rock, for a $40,000 court-house for Lafayette County.

Newport, R. I.—Abner J. Haydel, 156 Fifth Ave., is drawing plans for a large villa, two stories, attic and towers, fireproof, concrete walls, tiled roof; cost, $100,000.

New York, N. Y.—Ground has been purchased for the Bay Ridge section of the Norwegian Hospital, at the corner of 46th St. and 4th Ave.

At the annual dinner of the Wesleyan University Club President Bradford P. Raymond announced the completion of the fund of $100,000 for the erection of an administration building. It was also announced that $25,000 had been given the university toward a fund for the erection of another building, the uses of which structure are not ready to be made public.

Norristown, Pa.—Andrew Carnegie is reported to have given this city $50,000 for a public library.

Norwalk, O.—J. E. Carnahan, of Canton, will furnish the necessary funds for a steel plant to be built in this city at a cost of $1,000,000.

Parkersburg, W. Va.—The plans of H. Hannaford & Son, Huibert Block, Cincinnati, O., are stated to have been accepted for a ten-story office-building to be erected here by a syndicate, of which Senator J. N. Camden is a member.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Pasadena, Cal.—The Echo Mountain House, destroyed by fire on February 5, 1900, is to be replaced by a handsome stone structure, that will cost more than $100,000. C. W. Smith, of the Mount Lowe Railway Co. can give further information.

Philadelphia, Pa.—W. H. Grundy & Co., worsted yarn spinners, are having plans prepared for a large addition and extensive alterations to their plant. The plans call for a four-story brick and iron building of a slow-burning construction.

George K. Breintnall has purchased the residence 1320 Arch St. for $40,000. It will be altered for store and office purposes.

It is stated that Ashton S. Tourison will build at once a three-story Colonial structure for the Manheim Cricket Club. It will measure 30′ x 84′ and will contain 15 shower-baths, with over 600 lockers for the use of the members. An L-shaped pool house will be attached, containing bowling-alleys, together with spectators' quarters. In winter it will be used for playing cricket.

The George A. Fuller Co. will, it is said, build the twenty-two-story extension to the Land Title & Trust Company's office-building, on the site of the Lafayette Hotel at Broad and Sansom Sts. No contracts have been given out and no time set for the commencement of the work. The building will be similar in appearance to the present structure, and will be the largest in the city. Architects D. H. Burnham & Co., of Chicago, made the plans.

Plans have been prepared by F. T. Mercer, 717 Walnut St., for a three-story building, 125′ x 200′, for Giswanger Bros., pork packers, to be erected on 36th St.; cost, $78,000

Raleigh, N. C.—The North Carolina Board of Agriculture has decided to erect two buildings at the A. and M. College; cost, $25,000.

Raybrook, N. Y.—Raybrook has been selected as the site for the proposed State Consumptive Hospital, for which $150,000 has been appropriated by the State.

Richmond, Ind.—It is stated that the P. C. C. & St. L. Ry. will build a new passenger depot, to cost

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

about $30,000, and a new $80,000 bridge to cross Whitewater River. Work on depot to commence at once. Thos. Rodd, ch. engr., Pittsburgh, Pa.

Richmond, Va.—E. O. Meyer is about to build a $30,000 residence in Albemarle County, near here. Plans by D. Wiley Anderson, 914 E. Main St.

Carl Ruehrmund, 2 N. 10th St., has prepared preliminary drawings for a new $50,000 high school.

Roxbury, Mass.—Two 2½-story frame residences will be erected for George L. Bissell on Kenwood Road, at a cost of about $20,000, from plans furnished by Loring & Phipps, architects, 53 State St., City.

Salt Lake City, Utah.—Plans have been completed by C. M. Neuhausen, 528 Dooly Block, for a three-story brick flat-building for William J. Holloran and Herman Brissacher; cost, $20,000.

Sioux City, Ia.—It is stated that the Massachusetts Real Estate Co. and the Union Terminal Co. are figuring with the Warfield-Pratt-Howell Co. and the Baker Hardware Co. for the erection of a double warehouse building for both firms. The building as planned would be about 132′ x 264′, four-story, and would cost $125,000.

South Boston, Mass.—The general contract has been awarded Messrs. Mack Bros. of 95 Milk St., City, and Salem, for proposed five-story brick factory building to be erected at a cost of $200,000, at corner of Binford and Midway Sts. for the Boston Wharf Co., of 274 A St., from plans furnished by M. D. Safford, architect, same address. Building to be occupied by American Tin Can Co.

Sweetwater, Tenn.—Stockholders in the Sweetwater Woollen Mill will build a $75,000 cotton factory; work to commence in the spring.

Terre Haute, Ind.—The erection of a $50,000 edifice is contemplated by St. Ann's Catholic Church.

Warren, O.—A bill has been introduced calling for a $50,000 post-office.

Washington, D. C.—Andrew Carnegie will give $10,000,000 for the endowment of a great national

BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

university, with headquarters at the national capital. His intention has been communicated to President Roosevelt in a formal letter. It is not to be a government institution, but the government will act merely as trustee in keeping and disbursing the funds. The Carnegie University is to deal with all the higher branches of science. It will not interfere with established educational institutions. The presidents of various colleges and universities have given their indorsement to the idea of establishing a national institution for post-graduate university courses. The gift will be to the people of the United States, and not to the United States government.

Waukesha, Wis. — It is reported that Congressman Barney has asked Congress to appropriate $50,000 for a federal building for this place.

Wausau, Wis. — Citizens of Wausau are organizing a stock company for the purpose of erecting a $60,000 hotel. W. J. King, formerly manager of the Plankinton House, Milwaukee, is interested.

Waverly, Ia. — It is stated that Abraham Slimmer of this place, has given his home and surrounding grounds of ten acres to the Sisters of Mercy of Dubuque, to be used for the establishment of a hospital. The building will be remodelled and added to.

West Palm Beach, Fla. — During the next year Joseph Jefferson, the actor, will spend $500,000 on improvements to his estate.

Winona, Wis. — Stott & Sons are to build a $30,000 woollen mill here for the manufacture of horse blankets.

Woonsocket, R. I. — General contract has been awarded Geo. P. Warfield, builder, Carrington Ave., for proposed three-story brick and stone office block, 70′ x 230′, to be erected at a cost of about $35,000 on Main St., for the Main St. Power Co., from plans furnished by W. F. Fontaine, architect. Arrangements not yet made for any portion of work or materials needed.

York, Pa. — D. F. Lefean, president of the American Caramel Co., and M. G. Collins, secretary of the York Silk Mill, have effected a consolidation of the Pennsylvania Silk Co., at Fleetwood; the York Silk Manufacturing Co., the Diamond Silk Co. and the Carlisle Silk Co. The idea of the consolidation is to increase the business and capacity of the mills by the addition of new buildings and machinery, and to purchase other plants. The new corporation proposes to manufacture silk dress goods, and its capital stock will be $500,000.

BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

ALTERATIONS AND ADDITIONS.

New York, N. Y. — *William St.*, cor. Exchange Pl., raise building four stories; $152,000; o., John T. Williams, 27 William St.; a., J. T. Williams, Jr., 27 William St.

Worcester, Mass. — *W. Boylston St.*, bk. addition, 70′ x 84′; $12,000; o. & a., Norton Emery Wheel Co.; b., E. J. Cross.

APARTMENT-HOUSES.

Chicago, Ill. — *Winthrop Ave.*, three-st'y bk. & st. apart., 47′ x 56′, steam; $25,000; o., W. H. Barry; a., W. D. Cowles.

Sheridan Road, Nos. 1651-53, three-st'y bk. & st. apart., 100′ x 140′, steam; $60,000; o., R. W. Vonnah; a., Jas. Gamble Rogers.

New York, N. Y. — *Twenty-second St., Nos.* 144-148, six-st'y bk. flat, 60′ x 85′ 3″; $75,000; o., Levin & Packtman, 26 E. 106th St.; a., Sass & Smallheiser, 23 Park Row.

CHURCHES.

New York, N. Y. — *One Hundred and Sixty-fifth St.*, nr. Amsterdam Ave., 1½-st'y bk. & st. church, 100′ x 100′; $75,000; o., St. Rose of Lima R. C. Church, Rev. Edward McGinley, pastor; a., Joseph McGuire, 45 E. 42d St.

One Hundred and Forty-second St., nr. Convent Ave., 2½-st'y bk. & st. church, 75′ x 90′; $70,000; o., Church of Our Lady of Lourdes; a., Cornelius O'Reilly, 121 E. 44th St.

CLUB-HOUSES.

New York, N. Y. — *Fifty-sixth St.*, nr. 10th Ave. four-st'y bk. & st. club, 32′ x 87′, gravel roof; $30,000; o., Mission of the Immaculate Virgin, 2 Lafayette Pl.; a., Schickel & Ditmars, 111 Fifth Ave.

EDUCATIONAL

Brooklyn, N. Y. — *Avenue C*, bet. E. 13th & 14th Sts., four-st'y bk. public school, 60′ x 142′, slag & gravel roof, steam; $150,000; o., City of New York; a., C. B. J. Snyder, 59th St. & 5th Ave., N. Y.

New York, N. Y. — *One Hundred and Sixty-fifth St., Union Ave., Tinton Ave.*, four-st'y & base. bk. & st. school, 60′ x 200′, slag & gravel roof; $160,000; o., City of New York; a., C. B. J. Snyder, Park Ave. & 59th St.

FACTORIES.

New York, N. Y. — *W. Twenty-seventh St., Nos.* 544-546, six-st'y bk. factory, 50′ x 98′ 9″ & 94′, plastic slate roof; $35,000; o., John Williams, 556 W. 27th St.; a., C. H. Caldwell, 160 Fifth Ave.

BUILDING INTELLIGENCE.

HOTELS.

New York, N. Y. — *Broadway*, cor. 77th St., ten-st'y bk. & st. hotel, 98′ x 119′, slate roof; $600,000; o., Albert Saxe, 92 Fifth Ave.; a., Stein, Cohen & Roth, 92 Fifth Ave.

Amsterdam Ave., cor. 79th St., nine-st'y bk. & st. hotel, 100′ x 102′, slate roof; $300,000; o., T. F. Doherty, 69 Amsterdam Ave.; a., Hy. Anderson, 1183 Broadway.

W. Fifty-seventh St., No 120, twelve-st'y bk. & st. hotel, 60′ x 90′, slag roof; $350,000; o., Central Realty Co., 900 Seventh Ave.; a., Harry B. Milliken, 7 E. 42d St.

HOUSES.

Boston, Mass. — *Weld Hill St., No.* 74, Ward 23, two-st'y fr. dwell., 25′ x 45′, pitch roof, furnace; $5,000; o., Peter McLaughlin; a., J. G. Hutchinson; b., Thos. J. Tobin, 3628 Washington St.

Wiget St., Nos. 16-18, Ward 6, two-st'y bk. dwell., 34′ x 40′, flat roof, stoves; $7,000; o., Wolf Goldberg; a., C. A. Halstrom, 43 M St., S. Boston.

Englewood Ave., No. 72, Ward 25, two-st'y fr. dwell., 37′ x 46′, shingle roof, hot air; $8,000; o., E. L. Rogers, 58 Englewood Ave.

Grampian Way, nr. Savin Hill Ave., Ward 20, two-st'y fr. dwell., 25′ x 30′, pitch roof, furnace; $5,000; o., F. J. Stark; a., George A. Avery; b., A. Crawford, 62 Draper St., Dorchester.

Hancock St., cor. Downer St., Ward 20, three-st'y fr. dwell., flat roof, furnaces; $5,000; o., a. & b., Walters Bros., Quincy.

Willowwood St., cor. Harwood St., Ward 24, 2 two-st'y fr. dwells., 24′ x 36′, pitch roofs, furnaces; $9,000; o. & b., A. H. Green, 190 Lauriat Ave.; a., L. McCarron.

Kenwood Road, nr. Vila St., Ward 19, two-st'y fr. dwell., 28′ x 53′, pitch roof, hot water; $5,500; o., R. W. Moore, 37 Flingwood St., Roxbury; a., S. Rantin & Son, 1117 Columbus Ave., Roxbury.

School St., rear No. 41, Ward 25, three-st'y fr. dwell., 24′ x 49′, pitch roof, stoves; $5,000; o., A. L. Schueler; a., J. G. Hutchinson.

Meridian St., nr. W. Eagle St., Ward 1, three-st'y fr. dwell., 23′ x 64′, flat roof, hot water; $6,500; o., Wm. Cowhig; a., W. H. Taylor.

Dorchester Ave., nr. Elton St., Ward 20, three-st'y fr. dwell., 24′ x 50′, flat roof, stoves; $5,000; o. & b., Boyd & Berry, 11 Grampian Way.

BUILDING INTELLIGENCE.

(Houses Continued.)

Brockton, Mass.— *Sacramento St., No.* 6, three-st'y fr. dwell., 38′ x 87′, hot water; $16,000; o., F. S. Burnham; a., Reid & McAlpine, 110 Tremont St., Boston; b., T. H. Hanlon, 1721 Dorchester Ave., Boston.

Brooklyn, N. Y.— *Bergen St.*, nr. Brooklyn Ave., 3 three-st'y & base. bk. dwells., 16′ x 46′; $18,000; o., T. H. Fraser, 675 Nostrand Ave.; a., A. S. Hedman, 371 Fulton St.

Atlantic Ave, nr. 42d St., two-st'y & attic fr. dwell., 34′ x 38′, shingle roof; $5,000; o., M. Grundner, 147 W. 73d St.; a., F. T. Cornell, 125 E. 23d St.

Atlantic Ave., nr. 42d St., two-st'y & attic fr. dwell., 38′ x 40′, shingle roof; $5,500; o., Hendon Chubb, Orange, N. J.; a., F. T. Cornell, 125 E. 23d St., N. Y. City.

Coney Island Ave., nr. Avenue D, two-st'y bk. store & dwell., 20′ x 60′; $5,000; o., C. Steinhardt, 854 Manhattan Ave.; a., H. L. Spicer, 326 Fifty-sixth St.

Albemarle Road, cor. E. 11th St., two-st'y & attic fr. dwell., 29′ x 39′, shingle roof; $8,000; o., Dean Alvord, 152 E. 15th St; a., C. H. Pratt, 152 E. 15th St.

E. Forty-second St., nr. Avenue F, two-st'y & attic fr. dwell., 31′ x 35′, shingle roof; $6,000; o., J. R. Corbin, Flatbush Ave. & Avenue G; a., B. Driesler, 1432 Flatbush Ave.

Bushwick Ave., cor. De Sales Pl., three-st'y bk. dwell., 20′ x 75′; $6,500; o., E. Findeisen, 1169 Myrtle Ave.; a., G. Acker, 248 Hopkins St.

Ocean Ave., nr. Voorhies Ave., two-st'y & attic fr. dwell., 40′ x 40′, shingle & tin roof, hot water; $9,000; o., Mrs. J. G. Furey, 79 Keap St.; a., A. A. Koch, 26 Court St.

E. Fourteenth St., nr. Beverly Road, two-st'y & attic fr. dwell., 37′ x 37′, shingle roof; $5,000; o., Mary E. Bond, 140 Fenimore St.; a., W. A. Gericke, 136 Liberty Ave.

Everett, Mass.— *Linden St., No.* 195, two-st'y fr. dwell., 25′ x 49′, hot water; $5,000; o., Herman T. Deane; b., O. W. Watson.

Garden City, L. I.—2½-st'y bk. & fr. summer dwell., 50′ x 56′; $9,000; a conservatory to be built adjoining residence; a., Ward W. Ward, 156 Fifth Ave., N. Y. City.

Glen Cove, L. I.—2½-st'y fr. dwell., 25′ x 95′; $16,000; o., S. A. Jennings; a., C. A. Rich, 32 Nassau St., N. Y. City.

BUILDING INTELLIGENCE.

(Houses Continued.)

Medford, Mass.— *Paris St.*, two-st'y fr. dwell., 42′ x 44′; $5,500; o., Margaret Sullivan; b., Peter Donahue & Co.

Prospect Park, two-st'y fr. dwell., 34′ x 42′; $6,000; o. & b., Lewis H. Lovering.

Newton, Mass.— *Hancock Ave.*, Ward 6, two-st'y fr. dwell., 40′ x 46′, furnace; o., Frederick Lesh; a., Gay & Proctor, 12 Pearl St.; b., E. N. Hutchins.

Bracebridge Road, Ward 6, two-st'y fr. dwell., 39′ x 47′, furnace; $7,500; o., William Z. Ripley; a., Kendall, Taylor & Stevens, 93 Federal St.

New York, N. Y.— *Park Ave.*, cor. 188th St., two-st'y fr. dwell., 21′ x 50′; $5,000; o., Harriet E. Lockwood; a., J. J. Vreeland, 1985 Webster Ave.

One Hundred and Eighty-third St., nr. Park Ave., 3 three-st'y fr. dwells., 16′ x 65′; $15,000; o., F. M. Mellert, 1692 Monroe Ave.; a., John E. Kerby, 722 Tremont Ave.

One Hundred and Seventy-first St., cor. Fort Washington Road, two-st'y & attic fr. dwell., 39′ 6″ x 41′, shingle roof; $7,500; o., Geo. A. Reeber, 522 W. 145th St.; a., Lorenz F. J. Weiher, 67 W. 125th St.

Cottage Grove Ave., nr. McGraw Ave., two-st'y fr. dwell., 22′ x 56′; $6,500; o., Bertha L. Schaeffer, on premises.

Cottage Grove Ave., nr. McGraw Ave., two-st'y & attic fr. dwell., 18′ x 63′; $9,000; o. & a., Bertha L. Schaeffer, on premises.

Eighteenth St., No. 45, three-st'y bk. dwell. & store, 20′ x 69′; $10,000; o., Central Real Estate Assoc., 309 Broadway; a., Richard Berger, 309 Broadway.

Thirteenth St., East, and Avenue C, 5 three-st'y bk. & st. dwells. & stores, 26′ x 35′; $35,000; o., Geo. W. Egbert, 19th St. & Avenue C; a., A. D. Isham, 220 Broadway, N. Y. City.

Somerville, Mass.—*Benton Road*, two-st'y fr. dwell., 28′ x 48′, shingle roof, furnace; $5,500; a. & b., Beld ng Bros.

Sound Beach, Conn.— *Keofferam Park*, two-st'y fr. dwell., 30′ x 40′, shingle roof, hot water; $6,000; o., F. R. Sparks, 261 W. 44th St., N. Y. City; a., H. C. Frost.

Keofferam Park, 2½-st'y fr. dwell., shingle roof, hot air; $4,800; o., H. C. Stevens, 335 La Fayette Ave., Brooklyn, N. Y.; a., H. C. Frost.

COMPETITIONS.

CITY-HALL.
[At Bradford, Pa.]

Competitive plans and specifications will be received **until January 10** for the reconstruction of the city-hall. 1357

SCHOOL.
[At Milwaukee, Wis.]

Competitive plans and outline specifications will be received by the Board of Public Works **until January 31** for a school to be erected at Galena and 14th Sts. CHAS. J. POETSCH, commr. of pub. wks. 1358

SOLDIERS' MONUMENT.
[At Philadelphia, Pa.]

Office of Clerks of Common Council, Room No. 494, City-hall, Philadelphia, Pa. Competitive designs for the erection of a monument in honor of the Soldiers, Sailors and Marines who served in the War for the suppression of the Rebellion are invited; to be submitted **on or before March 3d, 1902.** Competition open to any architect who is a citizen of the United States. Copy of a printed programme will be furnished on application to GAVIN NEILSON, Clerk of Committee on Soldiers' Monument. 1357

PROPOSALS.

Treasury Department, Office of the Supervising Architect, Washington, D. C., December 17, 1901. Sealed proposals will be received at this office until 2 o'clock P. M., on the 30th day of January, 1902, and then opened, for furnishing the hot-water heating apparatus, etc., complete in place for the U. S. Post-office at Salem, Oregon, in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Superintendent at Salem, Oregon, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1357

STABLE AND GUARD-HOUSES.
[At Ft. Meade, S. D.]

Office of Chief Q. M., St. Paul, Minn. Sealed proposals will be received at this office **until January**

PROPOSALS.

7, 1902, for the construction of one cavalry stable, one blacksmith shop and four stable guard houses at Ft. Meade, S. D. Plans and specifications may be seen and blank proposals with full instructions, had upon application here, or at the office of the Quartermaster, Ft. Meade, S. D. GEO. E. POND, C. Q. M. 1356

Treasury Department, Office of the Supervising Architect, Washington, D. C., December 14, 1901. Sealed proposals will be received at this office until 2 o'clock P. M. on the 21st day of January, 1902, and then opened, for the installation of a conduit and electric wiring system for the U. S. Post-office at Blair, Nebraska, in accordance with the drawings and specification, copies of which may be obtained at this office or at the office of the Superintendent of Construction at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1357

Treasury Department, Office of the Supervising Architect, Washington, D. C., December 14, 1901. Sealed proposals will be received at this office until 2 o'clock P. M. on the 20th day of January, 1902, and then opened, for furnishing the heating apparatus complete in place for the U. S. Post-office at Blair, Nebraska, in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Superintendent at Blair, Neb., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1357

COURT-HOUSE. [At Jacksonville, Fla.]

Bids will be received by the County Commissioners **until January 10** for erecting a court house. P. D. CASSIDEY, Clk. of Bd. Holmes & Lawton, archts., Bay and Bridge Sts. 1357

COURT-HOUSE. [At New Roads, La.]

Bids are wanted **January 10** for furnishing material and erecting a court-house at New Roads. G. MONTFORT, clk. of the police jury. 1357

JAIL. [At Meridian, Miss.]

Bids will be received **until January 6** for the erection of the Lauderdale County jail, according to plans by Krouse & Hutchison. 1357

COURT-HOUSE. [At Olivia, Minn.]

Sealed bids will be received **until January 14th, 1902**, for the erection of a court-house for Renville County, Minnesota, to be built at Olivia. Plans and specifications are on file in the office of the County Auditor at Olivia, and at the office of Fremont D. Orff, architect, Lumber Exchange Building, Minneapolis, Minn. J. T. BROOKS, county auditor. 1358

SCHOOL-HOUSE. [At Hamilton, O.]

It is stated that bids are wanted by the Board of Education **until January 1** for erecting a school, to cost about $35,000. 1356

FIRE-STATION. [At South Bend, Ind.]

Bids are wanted **December 31** for the construction of central fire station; cost, $13,000. 1356

U. S. Engineer Office, 735 N. Capitol St., Washington, D. C., November 27, 1901. Sealed proposals will be received here until noon, December 27, 1901, and then publicly opened, for Hardwood and Tile or Mosaic Floors, complete in position, for New Building for Government Printing Office. Information furnished on application. JOHN STEPHEN SEWELL, capt., engrs. 1356

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 drawings 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 alterations of a building designed by another architect, 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, without due notice to the said designer.

*

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

*

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

*

SECTION 10. It is unprofessional to furnish designs 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 drawings except as an original contributor in any duly instituted competition, or attempt to secure any work for which such a competition remains undecided.

*

SECTION 12. The American Institute of Architects' "schedule of charges" represents minimum 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 architect 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 professional education and render all possible help to juniors, draughtsmen and students.

[*See Alphabetical Index on Cover 2 for Pagination.*]

CLASSIFIED ADVERTISEMENTS.

[Advertisers can be indexed only under a single head free of charge.]