THE AMERICAN ARCHITECT AND BUILDING NEWS

VOL. LXXXI SATURDAY, AUGUST 1, 1903 No. 1440

CONTENTS

WE print in another column a letter from Professor Martin, in regard to the new alternative course in architecture at Cornell University, and very gladly correct anything that we may have said in commenting, with imperfect knowledge, upon the first newspaper paragraph which appeared in relation to it, as a course without mathematics. As Professor Martin explains, it should, perhaps, be termed rather a course with something else substituted for calculus than a course without mathematics; and the question whether an architect always needs to study the calculus is still an open one. Practically, no architect uses the calculus in his work, as the occasions on which he might employ it advantageously are so rare that it is less troublesome to consult a mathematical friend than to brush up his own knowledge; and its value in architectural education is for the mental training which it gives; so that it is quite conceivable that for some minds more suitable mental training may be had in another way. We cannot enter here upon the discussion of the subject, which is one of statistics and experience, rather than opinion; but, whenever the statistics and the results of experience can be collected and compared, the architectural world will find them of great interest.

THE whole subject of architectural education is one of immense importance, not only to the profession, but to the community. How are we to train men to design buildings which will delight our posterity as those that our ancestors designed delight us? Some answer this question by demanding accurate copying of good examples; but, although the great masters of the Renaissance measured and sketched the antique with scrupulous fidelity, their own works were very far from being blind copies of the antique; while the Gothic architects of the thirteenth century had nothing to copy from, even if they had desired to do so, and the architects of antiquity, although they confined themselves to a small range of forms, were far from being copyists. Sentimental people will say at once that the thirteenth century Gothic, as well as the Doric of Ictinus, and the Renaissance of Palladio, had the "divine spark," while modern work has no divine sparks. We are not so sure about the latter theory; but, at least, the divine spark does not shine very brilliantly in modern architecture, and it is a proper object of modern architectural education to try to revive it. A favorite view, which has much to commend it, is that the study of nature is essential to production of beautiful architectural design; and we know that the great architects of antiquity, of the Renaissance, and of the Middle Ages, were familiar with natural forms, even when they were not also professional sculptors; but it may be questioned whether this is enough. If we are not mistaken, the German architects, who are commonly supposed in this country to have nothing but an engineering education, with a little architectural history added, have more practice in drawing from the life during their university course than is given in any school of architecture in this country, or is required even in the School of Fine-Arts in Paris; yet, clever and picturesque as modern German architecture is, very little of it can be called beautiful. Here, then, the theory seems to be defective. It is not, as some people would have us suppose, that the German character is incapable of perceiving beauty of form, for much of the modern German sculpture is unrivalled in its way; but the study of form does not seem to affect German architects in the way in which it affected those of Greece, or Italy, or France; and there is, apparently, need of further investigation before the subject can be cleared up. Such investigation can be better made here, perhaps, than anywhere else, by comparing the various curricula of the professional schools with the work which they turn out. Of course, the individual capacity of students, or accidents of other kinds, will vary the results; but, as the scientific man eliminates individual eccentricities by averaging a great number of specimens, so it may be possible to conclude, with approximate certainty, that the study of mathematics in one school, or assiduous drawing from the life in another, or liberal practice in modelling in a third, is favorable, or unfavorable, to the feeling for proportion and composition of lines, surfaces, lights and shadows on which architecture, considered as a fine-art, depends.

THE building world has heard with great regret of the financial difficulties of the great building corporation of Norcross Brothers. We have no idea of writing an obituary notice of a concern which has, as we hope and believe, many years of prosperity still before it; but it may be interesting to trace the career of this great corporation, the largest but one in the world devoting itself to building. Thirty years ago the firm of Norcross Brothers consisted of two members, who carried on a modest business in the city of Worcester, with profit to themselves and satisfaction to their neighbors, to whom they were known as honest, able and enterprising. The elder brother, a quiet, prudent person, and an excellent mechanic, retired from the business, with an ample fortune, some years ago, leaving it to the younger, a man of remarkable character. Many of our professional readers have seen something of Orlando W. Norcross, and we venture to say that all those who know him have been profoundly impressed with his quiet force, and the precision of his ideas. Reserved and modest in his manner, it was his way to listen attentively to what others had to say, and then, in a few words, present the matter with a clearness which made other people's thoughts seem vague and wandering. Under different circumstances he would have made a great general, cool, energetic, resourceful and reserved, as well as high-minded and compassionate. Fortune, however, engaged him in industry, and he became a leader in this industry, as he would have been a leader in any occupation. Almost from the first, he saw in the profession of building a field for the exercise of the brilliant faculties with which nature had endowed him. Not content with building as every one else built around him, he studied new methods, new materials and new designs. Few builders have had so just an appreciation of architectural beauty, and the late H. H. Richardson owed much to the sympathy with which Mr. Norcross, then young and comparatively unknown, entered into the spirit of his work. His zeal for trying new effects, new processes and new materials probably interfered, in some degree, with his financial success. He designed and used machinery for hoisting and transferring materials on a scale never known before; he secured land, and opened quarries of marble, sandstone and granite in perhaps twenty different places; he made bricks; carried on a great iron-working establishment; cut, turned and polished, with ingenious machinery, imported marbles, as well as stone from his own quarries; operated one of the best-equipped wood-working mills in the country; and, for a time, carried on a plumbing department. In addition to all these cares, he distinguished himself for sturdy maintenance of the right to employ non-union men, and, in defence of his principles, carried

on, with his usual quiet fortitude, and his usual success, many a struggle with the union leaders. His contests were with the leaders, not with the men, for the Norcross men, whether union or non-union, were rarely discontented. Every summer, for many years, all the Norcross workmen were invited with their families to their employer's house, where the lawn gave room for games for the athletic, while those more quietly disposed enjoyed themselves in other ways for the day; and the personal relations of all concerned in the operations of the firm were uniformly pleasant.

IT is probable that the great extension of the business of the Norcross Company of late years has been, as so often happens, unfavorable to its profitable conduct. It is an old proverb that nothing can take the place of the eye of the master, and there is a physical limit to the amount of personal attention which the most energetic man can give to his affairs. We have no idea of telling tales out of school, much less of saying anything to the discredit of a firm whose members we are glad to claim as friends of many years' standing; but we may recall, as an illustration of certain disadvantages of too large a business, that once, on a visit to the Norcross establishment, after the operations of the firm had grown to a figure of several millions annually, we found the principals absent, and two draughtsmen lying comfortably on their backs on the drawing-tables of the great draughting-room. This was a small matter, it will be said, and it was certainly an exceptional instance, for no one, perhaps, has ever been served more loyally by most of his employés than Mr. Norcross; but one idler out of a hundred people employed makes a very perceptible inroad into the profits of a business conducted under such keen competition as that which prevails in building, and not even improved machinery, or control over the supply of materials, can take the place of faithful service. So far as the Norcross Brothers Company is concerned, it is probable that the relief from pressing financial perplexities brought about by the receivership will do much to assist in the economical and efficient completion of the contracts now in progress or hereafter undertaken, and the financial statement of the corporation shows that there is a large surplus of assets over liabilities, even without including the profit which it is reasonable to expect on the completion of building contracts amounting to more than twelve million dollars.

THE Master Masons' Association of Boston has issued a circular to the public in regard to the strike of union bricklayers in that city. As every one concerned with building knows, this great industry has for the last twelve years been carried on in Boston under very favorable conditions, employers and men working together, under an agreement which prevents strikes, and provides for the settlement of all differences, and of wages and working hours, by a joint Board of Arbitration. A few weeks ago, the bricklayers' union, without notice, withdrew from this agreement, demanding an increase of wages, as well as assent to a new agreement of a different character. The employers would probably not have objected to the increase of wages, if it had been asked for in the manner agreed upon, and established by the joint Board, with notice sufficient to enable contractors to make their estimates in accordance with it; but they objected to the breaking of the agreement already existing, and to the substitute presented to them. Several attempts have been made to have the former agreement, which provides for increasing wages, with due notice, whenever the joint Board shall consider it advisable, renewed, but, until now, without success; and the Master Masons' Association asks for the support of architects and the building public generally in its efforts to maintain a system which has secured to building workmen in Boston for twelve years good wages, and reasonably steady employment, while it has facilitated and encouraged building investments.

A GREAT French police official always instructed his detectives, when a crime had been committed, to "look for the woman"; his theory being that a woman always furnished either encouragement or motive for criminal actions. We will observe that the French now improve on this maxim by saying that a woman generally furnishes the inspiration for good, as well as bad, actions, and then proceed to apply it to the consideration of the Boston bricklayers' strike. In labor troubles, as the New York investigations have shown, it is wise, instead of looking for the woman, to look for the money, and the root of all evil is very frequently found to be also the root of industrial demonstrations. We should be far from attributing to the officials of any Boston union a disposition to look with anything but the eye of austere virtue upon the union funds in their care; but the bricklayers' union in Boston is said, on good authority, to have accumulated, at the beginning of the present year, a "strike fund" of thirty-five thousand dollars. This is a good deal of money, and a prudent man might be excused for regretting to see it lie idle. To say nothing of the facilities which it would afford a treasurer like Mr. Murphy, of Brooklyn, for "having a good time" in Europe, as a relief from his cares, there are many other applications which might be made of it, for the purpose of setting it in circulation. Which of them would appeal to the Boston union we will not attempt to say; still less would we suggest that an auditing committee should inquire into its investment; but when the history of the present strike is written, we should not be very much surprised to hear that it would not have happened if there had been no strike fund.

THE settlement of the struggle between the New York Employers' Association and the unions has brought about a result which might really have been expected, although it is probable that neither party thought of it at the time the settlement was made. Under the arbitration agreement the employers offered to negotiate, in case of dispute, with unions, of course without specifying any particular sort of unions, as the unions themselves are constantly changing. The walking-delegates took advantage of this to try to stop all building operations by keeping some of the smaller unions from signing the arbitration agreement, after most of the more important ones had done so, imagining that they could coerce or distress the employers, and the great majority of the men, by keeping a small number of indispensable men from resuming work. This has always been a favorite manœuvre of labor leaders, and it seems to have been partially successful for a time. Now, however, the managers of the Employers' Association, who have been besieged by members, even of the unions kept on strike by the walking-delegates, begging for employment, have made a decisive move, and have notified members that they are at liberty, and are required, to treat with workmen belonging to trades still on strike as individuals, accepting, as comprehended in the terms of settlement, any man who will, on his own account, sign the arbitration agreement, at the same time recognizing any unions which may hereafter be formed in such trades by men who have signed the agreement. The managers of the Association must have felt themselves sure of the support of the great mass of building workmen before venturing upon this bold stroke; but the distresses of the men whose unions have accepted the agreement, but who see their families starving in the interest of the walking-delegates, together with the revelations of the dishonesty and incapacity of union officials, have brought about a state of mind among union members in which the voice of justice and common-sense has, for the first time for many years, a chance to be heard. It is evident that this manœuvre cuts the ground completely from under the feet of the walking-delegates. If they cannot prevent men from working who do not belong to their unions, their power is gone, and the members of the unions who have signed the agreement, in their indignation against the leaders who have for so many years enriched themselves at their expense, will probably endorse the position of the Employers' Association, that unions presided over by convicted blackmailers and thieves are not the only sort that are entitled to recognition; and that a union may consist of one man, if he is ready and willing to conform to the principles of those with whom he works, and to do his part toward supporting the true interests of working people. Meanwhile, the principle, that a man is not obliged to buy a card from an insolent swindler before he is allowed to earn an honest living, has been established at a single stroke, without violence, and with, apparently, the approval of the great majority of union members, in the city which had seemed most hopelessly given over to the labor tyrants; and this great victory for liberty and justice has been won by a handful of able and earnest men, supported by the confidence of the public, and wise enough to take advantage of a favorable opportunity.

TABLE-GLASS.[1]

WHY or when a glass manufactory was founded in "Alsatia" I am unable to say definitely. The proximity of the river and the depreciated value of the property, owing to an evil reputation, may have been inducements to the original founder. The works must have been in existence before the end of the seventeenth century, for an advertisement of the wares produced appeared in the *Tatler* in 1710, and the manufactory must have been in a tolerably advanced condition to warrant an advertisement in such an important periodical. The advertisement ran as follows: —

"At the Flint Glass-House in White Fryars near the Temple, are made and sold by Wholesale and Retale, all sorts of Decanthers, Drinking Glasses, Crewitts, &c., or Glasses made to any pattern of the best Flint, as also all sorts of common Drinking-Glasses and other Things made in ordinary Flint Glass, at reasonable Rates."

It is about the direct lineal descendant of these "decanthers and crewitts" that I am about to speak.

All table-glass worthy of the name is blown glass. Every vase, wine-glass, or decanter has commenced its career as a white-hot, solid mass of viscous material coiled round the end of a long iron blowing-tube. A well regulated puff of breath through the tube creates a bubble and the bubble is the embryonic stage of all table-glass.

The form of the bubble can be readily modified. Glass so long as it is hot is almost infinitely ductile, and even after it has been partly chilled its ductility can be restored by reheating. If the bubble, while still attached to the blowing-iron, is held downwards it lengthens out into an ellipse; if the blowing-iron is held vertically with the bubble uppermost the bubble compresses itself into the form of a "scone," and if the "scone" is pierced in its centre, and the blowing-iron is trundled like the handle of a mop the "scone" unfolds itself into a flattened disc. By these simple movements (which are in constant use in the glass factory) the form of the bubble is modified without the use of tools. With the aid of a primitive looking tool, closely resembling an exaggerated pair of sugar-tongs, and of a stool or chair, with two parallel projecting arms, between which the workman sits, and on which he rests and rolls the iron rod to which the glass is attached, every imaginable modification of a spherical form can be developed.

At the present time, owing to a demand for excessive regularity and excessive lightness and thinness, very many of the simple forms of table-glass are blown in moulds. This process of moulding requires comparatively little skill, and the valuable training which the fashioning of simple forms with the tool affords is being lost. If the fashion and demand for so-called "aërial" glass is long continued the skilled craft of glass blowing will disappear.

The English glass-blower (however clever he may be with his fingers) has no talent for design. He is painfully realistic, and if asked to produce a vase (without a pattern to guide him) will make an accurate model of a man's tall hat, a pair of bellows, or some other everyday piece of furniture, but will fail to create anything combining originality with beauty of outline. What technical education will do for the English glass-blower in the distant future remains to be proved.

The limitations of design are very strait. When what appears to be a fresh form or combination has been evolved, the discovery is generally made that the same has been done, and done better, ages before. Even when a satisfactory design has been produced, the designer may meet with unexpected difficulties owing to the wealth of possibilities of failure belonging to the craft. The would-be designer must closely and constantly watch the phases of form through which vessels pass, while being fashioned, and must note any outline that appears to be beautiful or novel. The most successful designs have been based on such study combined with the study of the productions of early Venetian, Dutch and German master-craftsmen.

In recent years, Mr. T. G. Jackson, R. A., was one of the first to realize that a wine-glass may be something more than a bowl upon a stick, and that a graceful outline is not incompatible with utility.

About 1875, the late William Morris made several designs for table-glass, possessing, as all his work possesses, interest, beauty and originality.

Mr. Albert Hartshorne has written and illustrated a voluminous work on the evolution of drinking-glasses. The chief variation is shown to have occurred in the leg, and the variation may obviously be almost unlimited. Legs may in section be solid or hollow, cylindrical or oval, square or oblong. They may be twisted; they may be, as it were, turned, with hollows, curves and projections; they may be in one piece or in many pieces, and they may be ornamented with seals, frills, or "pinchings." Even the inside of an apparently solid leg may be decorated with plaited threads of colored enamel, or with spiral air-bubbles. These corkscrew lines of silvery air have a very simple origin. The leg is made from a small lump of viscous glass. Into this lump as many pin-pricks are made as spirals are required. The lump is then pulled out into a leg, and twisted at the same time. As the leg stretches and twists, the pin-pricks stretch and twist, and display themselves as spiral coils of air.

There is not the same scope for variation in the forms of decanters and jugs as there is in the form of drinking-glasses and vases. The handles of jugs may be distinctly decorative, but are always treacherous. With the view of obviating the necessity for handles, decanters have been made with flat or dented sides so as to afford a secure grip for the fingers, but public taste has demanded that even these shapes should have handles affixed.

The display of niceties of form depends in no small degree on the chemical nature of the glass employed. For this purpose the soda-lime glass, which is used in Venice, and the use of which has recently been introduced in England, although it is seldom absolutely white, and often streaky and bubbly, is better adapted than the obtrusively brilliant potash-lead glass, from which English table-ware is commonly made.

The mention of the chemical nature of glass naturally introduces the subject of color. Some thirty years ago the colors available and used for English table-glass were ruby, canary-yellow, emerald-green, dark peacock-green, light peacock-blue, dark purple-blue and a dark purple.

About 1870, the "Jackson" table-glass was made in a light dull green glass, similar to that used in stained-glass as "white," containing a wealth of bubbles and interesting irregularities. Owing to these so-called defects, the glass only appealed to a very select circle. The dull green, commonly known as "pale-green," was followed successively by amber, white opal, blue opal, straw opal, sea-green, horn-color and various pale tints of soda-lime glass, ranging from yellow to blue. Experiments have also been tried with a violet-colored glass, a violet opal, a transparent black, and with glasses shading from red to blue, red to amber and blue to green. Touches of color have been added to vessels in course of manufacture by means of seals or tears of molten glass, applied like sealing-wax; or by causing vessels to wrap themselves round with threads or coils of colored glass. By the application of a pointed iron hook, while the vessel and thread are still ductile, the parallel coils can be distorted into bends, loops, or zigzags.

The surface of vessels may be rendered lustrous by rolling the hot glass on metallic leaf, or iridescent by the deposition of metallic tin, or by the corrosion caused by the chemical action of acid fumes. Gilding and enamel decoration are applied to vessels when cold, and fixed by heat.

Cutting and engraving are produced by pressing the surface of vessels against the edge of wheels revolving on horizontal spindles. "Cutting" wheels range from 18 inches to 3 inches in diameter, and are made of iron for grinding, stone for smoothing and wood for polishing. "Engraving" wheels are small, ranging from 1 inch to ¼ inch, and are made of copper.

It is the fashion to run down cutting as a form of decoration, a fashion which is partly due to a somewhat ill-advised pronouncement of Professor Ruskin's. In appendix 12 of the second volume of "*Stones of Venice*," he says with regard to glass, "durability and transparency being the two peculiar characters of glass, all work in glass is bad which does not with a loud voice proclaim one or other of these great qualities, and, consequently, all cut glass is barbarous."

In making this statement Professor Ruskin evidently forgot that the power of reflecting and refracting light is also a peculiar and important character of glass. It is true that the process of cutting was carried to an extreme pitch of vulgarity in the middle of the last century, but there are many specimens of English and Irish cut-glass of the eighteenth century of great refinement and beauty.

The true use of engraving is to add interest to vessels by means of coats-of-arms, monograms, inscriptions and graceful outlines. The improper, but too common, use of engraving is to hide defective material.

In the Paris Exhibition of 1900, surface decoration was the prominent feature of all the exhibits of table-glass. The carved or "cameo" glass, introduced by Thomas Webb, of Stourbridge, in 1878, had been copied with varying success by glass-makers of all nations. Frequently the surface had been dulled by acid, so as to produce what is called a "satin" finish. M. Emile Gallé and Daum Frères, of Nancy, exhibited specimens of this form of decoration possessing considerable beauty. The so-called "Favrile" glass of Messrs. Tiffany, of New York, owes its effect in great measure to surface color and lustre. The vases of Karl Koepping, of Berlin, are exceedingly graceful and fragile, but appear to be creations of the lamp rather than of the furnace.

I have already referred to the impetus given to the manufacture of English decorative table-glass by William Morris and T. G. Jackson. I am unwilling to allow this opportunity to pass without mentioning two other benefactors of the craft of glass-working, although their influence has only affected table-glass indirectly. To the one, Charles Winston, is due what may justly be called the Renaissance of English stained-glass; to the other, Sir W. B. Richmond, is due the demonstration on a large scale that English mosaicwork is a practicable form of structural decoration.

Winston was born in 1814, and died in 1864; he was a busy barrister, but devoted all his spare time to archæology, and especially to the study of stained-glass of the twelfth, thirteenth, fourteenth and fifteenth centuries. In the pursuit of his hobby he examined nearly all the best examples of ancient stained-glass in England, and made a large number of careful drawings from them. He satisfied himself (as stated in his memoirs published in 1865) that "the success of a glass painting depends as much on the quality of the material as on the skill of the artist." What he did for stained-glass can best be

[1] A paper by Mr. Harry Powell, read before the Society of Arts and printed in the *Journal* of that Society.

illustrated from his own letters. Writing to his friend, Mr. C. H. Wilson, he says, "Ever since 1850 I have been amusing myself, at no small cost, in having analyses made of ancient glass. . . . I offered to Chance of Birmingham the analyses if he would attempt to work them out, but he refused. Ultimately Powell offered to take the matter up, and erected a furnace for the purpose. It is fortunate that he did offer, for without his aid there would have been no practical result, and had his place been farther from the Temple I could not have attended to the experiments as much as I did. . . . I have had two windows done in the Temple Church (the round part) to commemorate our triumph. . . . The new material is as harmonious, brilliant and at the same time solid in appearance as the old glass. . . ." Again writing in July, 1854, about a window in Lincoln Cathedral, he says, "I do not see the slightest difference between it (the new glass) and the old, except the dirt. The ruby is splendid."

The colored glass made for mosaic windows was for long known as "Winston's" glass. It was the origin of the stained-glass branch of these works, and was a cause of contact with Burne-Jones, Morris, Ford Madox Brown, Poynter, Moody, J. Doyle, Albert Moore, Jackson, Wooldridge, Holiday and other artists.

A letter, written by Winston in November, 1854, forms a link between his work and that of Sir W. B. Richmond. He writes: — "*Dear Powell*, — I have at last got some specimens of the glass mosaicwork from St. Sophia, at Constantinople, and from St. Paul's, at Rome, which I have given to Mr. Clarke to analyze, and I doubt not you will soon be able to produce the same yourself." It was long before this prophecy was fulfilled. A period followed devoted to experiments in the manufacture of enamels and in technique. One relic of these experiments is an angel's head, executed in 1865. Subsequently, panels of glass pictorial mosaic were erected at South Kensington Museum, and pavements of glass mosaic were put down at South Kensington, at the Society of Arts, and in several churches.

In 1884, a large panel representing the central group of Raphael's "Disputa" was put up on the east wall of the morning chapel of St. Paul's Cathedral, and in 1887, Holman Hunt's picture of "Christ with the Doctors in the Temple," was translated into mosaic for the reredos of Clifton College Chapel. Both these works were executed in what is known as the "New Venetian" method, *i. e.*, they were treated as panel pictures, and worked in a workshop.

In 1891, Sir William Richmond, R. A., was commissioned to carry out the decoration of the choir of St. Paul's Cathedral in glass mosaic. A study of these mosaics (all of which, with the exception of two angels of the Passion at the extreme east of the choir, were executed *in situ*) will prove the superiority of Sir W. Richmond's method of working. St. Paul's affords ample scope for comparing the two methods (the "workshop" method and the *in situ* method), for not only (as has already been stated) are there examples of English glass-mosaic worked in the Venetian method, but there are important examples of Venetian work in the pendentives of the dome, and is on the west wall of the morning chapel. If, however, further proof needed of the superiority of the "*in situ*" to the "workshop" method, a comparison should be made between some of the unrestored mosaics in Ravenna, which were certainly worked *in situ*, with mosaics in Rome and Venice, which have been "restored" by the Venetian method.

Sir William Richmond has proved that mosaic must be used as the colored surface of a structure, and not as pictorial panels fixed to a structure. If this may be accepted as an axiom, the whole process of mosaic is enormously simplified. There is no need for minute shaping or fitting of the tesseræ. Indeed, so great is the covering power of gold and colored enamels, that in some positions (according to the distance from the eye) the tesseræ may be placed at from $\frac{1}{8}$ inch to $\frac{1}{4}$ inch apart, and yet the whole service is adequately colored. There is no need of an extensive palette; every shade and tint can be produced by the contiguity of contrasted colors. By working *in situ* the ground itself, as well as every fragment and contrast of color, can be given its full value. There is, moreover, no real difficulty in working *in situ* or of supervising the work.

It may be asked why, in a paper on "table-glass," I should have referred to the work of Winston and Sir W. Richmond. Their influence, however, on table-glass, though indirect, has been of considerable importance. It was the manufacture of Winston's glass that suggested the manufacture of vases and table-glass in soda-lime glass; and the preparation of the colored gold and enamels for Sir W. Richmond's mosaics suggested the introduction of many of these colors and combinations of colors in the manufacture of table-glass. There is yet another reason for this apparent digression; stained-glass windows and mosaics, as well as opaque glass tiles and "opus sectile," thermometer tubes, and pump-barrels, electric-light fittings, and work in silver and in iron are all descendants and developments from the "crewitts, decanthers," and other simple forms of table-ware which were advertised in the *Tatler* in August, 1710.

THE ARGILO-CALCAREOUS OR SAND-LIME BRICK (GIRARD-MEURER PROCESS).—I.

THE argilo-calcareous or sand-lime brick is in reality a compressed mortar composed of sand, lime and clay, hardened by means of steam under pressure. In the manufacture of this brick, however, the compound does not solidify as in the case of ordinary mortar, for whereas the latter becomes hardened by the hydration of the double silicate of lime and alumina existing beforehand in the lime, the former hardens by forming that hydro-silicate in the presence of the steam under pressure. The discovery of the action of steam on lime in the presence of silica, is due to the famous chemist Michaelis, and dates back to the year 1880. Another noteworthy fact is, that while ordinary mortar requires from several weeks to several months to acquire its proper degree of resistance, the compound of which the sand-brick is composed acquires, by reason of the treatment to which it is subjected, a greater resistance in a few hours.

Michaelis, in his experiments, had, it must be mentioned, considered only the action of steam on sand and lime, whereas Girard, the inventor of this new building-material, carried his experiments farther, and discovered, in his turn, that clay was also influenced by lime under the action of saturated steam, and that much more rapidly than when in the presence of sand alone, and that by adding to the two essential parts, sand and lime, a small portion of clay, a product possessing greater hydraulic and resisting properties could be produced. This is explained by the fact that during the process the clay combines with the silicic acid and forms a chemical compound, the analysis showing only silicates of lime, alumina and iron. It is claimed by the patentees that the preparatory treatment which the compound has to undergo is the surest guaranty of its stability, since the water-steam treatment is the test of its resisting power. If it emerges from the hardener intact, without cracks or blaze-marks, it is certain that all the lime has been completely slaked, and if it comes out in a hard, compact state, this is a proof that the silicate of lime has been formed, and that it will be henceforth proof against the effects of both climate and temperature. It must not, however, be supposed that, should any of the lime remain in a free state, the quality of the brick will deteriorate; on the contrary, it will combine gradually with the other materials, and the strength of the brick will increase with age. Another important point is that these bricks are necessarily homogeneous, *i. e.*, all the elements entering into their composition are uniformly distributed through the mass, and the mixture is, therefore, intimate and perfect. This is an essential condition of manufacture, as the binding of the grains of sand with the silicate would otherwise be irregular, and the finished brick would have no strength. A brick, therefore, which, when drawn from the hardener, is found to be uniformly hard and resisting, must of necessity be homogeneous, thus ensuring that it may be easily worked or even sculptured, as has been proved by experience. The preparatory process allows also of the introduction of various coloring matters, such as the ochres, and different mineral color bases, and these matters being intimately mixed with the mass, a variety of shades and tints may be obtained, and a scale of colors, not possessed by clay bricks, inaugurated. Besides, as the argilo-calcareous product is not fixed, it emerges from the hardener with the same shape as when taken from the mould, its surfaces remain perfectly parallel, and its edges and angles are sharp. From a sanitary point-of-view it may be compared to clay bricks, as it possesses the same degree of porosity. The following summary will be sufficient to show the properties possessed by the argilo-calcareous brick. It possesses absolutely regular contours, without contractions or deformations, and has even surfaces and sharp edges. It has a proper natural color, white or greyish, depending on the kind of materials used, or may be colored by employing different mineral coloring matters, chemically mixed with the mass. It has a pressure resistance of 440 pounds per square centimetre or about 2,816 pounds per square inch, and such resistance can be increased, if required, for certain special purposes. It is moulded by powerful mechanical means, and this permits of the production of various forms and mouldings. By reason of its composition it is perfectly hydraulic, and can therefore be employed for subaqueous constructions. Frost has no effect whatever upon it. It possesses the porosity necessary, from a hygienic point-of-view, for materials used in buildings, but this porosity can be reduced if necessary to practically zero. It is a bad conductor of heat. It can be easily cut with a trowel. Its composition is perfectly homogeneous and its density, with regard to the materials employed, is constant and regular. Its hardness increases with age, as in the case of cement. It forms with the mortar used for binding, which adheres not only mechanically, but also because of its molecular and chemical affinity, a single homogeneous construction or monolith, of great strength. It can be painted or varnished without being subjected to any previous preparation. It allows the interior coatings of plaster to be replaced by one ordinary thin-scraped application. It absorbs but a very small quantity of water and soon dries again. The brick can be used without previous moistening. It never foliates or throws out any of the soda or potash salts.

It has been stated in the foregoing that the argilo-calcareous brick is a form of hydraulic mortar hardened by steam under pressure. It would be, however, as well to formulate here certain distinctions bearing upon the materials used and their relative proportions. To make an ordinary hydraulic mortar, sand and cement, or slaked hydraulic lime, mixed with water, are generally employed. The sand is used in a moist state, and its chemical composition varies from clayey sand to quartz sand. Very fine sands are not recommended because they give mortars which adhere but indifferently to stones; large sands require a rich dose of cement, whereas medium-sized sands (the grains of which will pass through a sieve

having about 600 per square inch) are preferred. For the argilo-calcareous compounds the sand is used dry and hot, and its tenor in silica should be as high as possible. As for the size of its grain, the finest products are made from quartziferous sands of a very fine texture. In ordinary hydraulic mortar the sand plays a purely physical part solely as a resistant, inert matter, for the solidification of the mortar is only due, according to Vicat, to the hydration of the double silicate of lime and alumina. In the sand-brick the sand not only plays a physical part but a chemical part as well, by furnishing silica to the lime with which it is compounded, both of which, under the action of the steam, will combine together, forming the silicate of lime, which again forms the binding material of the mass. In so far as concerns the lime in ordinary mortar, it contains, as hydraulic lime, from 10 to 35 per cent of clay to every 65 to 90 per cent of lime (*CaO*), foreign matter, oxide of manganese, sulphate of lime, sand, etc. It is a complex body, but fixed, of a stable chemical combination, and which enjoys certain characteristics proper to it. The combined clay gives it its indice of hydraulicity in relation to the proportion of silica and alumina contained. In argilo-calcareous compounds the lime used is a fat lime, the richest possible in the oxide (*CaO*), and the clay is added in pulvurent form, uncalcinated, and therefore in a raw state. It might be said that this combination constitutes an hydraulic lime, but this is not so, for on the one hand the small proportion of clay would only furnish an indice scarcely equal to .03, and on the other hand the high temperature required to form this combination (1,200° to 1,600° C. = 2,192° to 2,912° F.) is lacking, seeing that the only calorific agent employed is steam. Nevertheless the products are positively hydraulic, which demonstrates that the part played by the clay is quite different. From the above it will be seen that the constituent mortar of the argilo calcareous compounds possesses properties different from those found in ordinary hydraulic mortar, which are made manifest through the special treatment to which the former is subjected. The difference between the two bodies is, however, made still more manifest if one considers the proportions of their various elements. In ordinary hydraulic mortar the lime, in the form of a paste, and the sand are, as a general rule, in the proportion of 1 : 2.5, and 1 : 3 and over for rich mortars. On the other hand, the water needed for the making of the lime into a paste of a firm kind varies, according to the quality of the lime, from 50 to 83 per cent, and one must add to this in addition the water necessary for making the mortar, the quality of which depends largely upon the nature of the sand and the percentage of lime, but which is comprised between 16 and 64 per cent. In the argilo-calcareous compounds the lime is used unslaked and pulverized in the proportion of 1 : 10, at the utmost, relatively to the sand, and it is only moistened with the quantity of water necessary to transform the mixture into a mono-hydrate, say about 30 per cent. Next the resulting mass receives a quantity of water equal to about 7 per cent of its weight. It will thus be seen that the two compounds are quite distinct. The first is finished upon its being mixed, and its setting occurs by the phenomenon of the air hydration of the double silicate of lime and alumina, whereas the second has besides to be compressed and submitted to the action of steam under pressure to harden and form the desired compound. The main characteristic feature of Meurer's process is the use of dry materials, allowing one to apportion exactly and mathematically the requisite additional water on the one hand for the slaking of the lime during the mixing, and on the other hand for the moistening of the mass in order to render it sufficiently plastic to be moulded. Another point in the process which, combined with the first, constitutes the patented invention, is the simultaneous use of hot sand and hot water in the mixing, which has the result of facilitating and hastening the hydration of the lime, besides favoring the setting after moulding, by causing a veritable crystallization. From another aspect, the characteristic feature of Girard's process is the addition to the mixture of sand and lime of a very small proportion of clay, the presence of which has the effect of increasing the plasticity of the mass, thus facilitating the moulding, thus rendering its scope of application greater, and, on the other hand, producing a body which, when subjected to the action of steam under pressure, is readily attacked by the hydrate of lime. The latter property possesses the economic value of reducing by one half the amount of steam required in the stoving or hardening as compared with other lime and sandstone processes. The mortar prepared under these two joint processes furnishes mouldings which possess great resisting powers when taken from the press, and which can be immediately steam hardened when they solidify completely and in such a manner that they may be used directly afterwards for building purposes. This solidification is brought about by the combination of the hydrate of lime with the silica and alumina of the clay into a double silicate of lime and alumina, which cements the grains of sand together, and thus forms a homogeneous block of stone of fixed and unalterable composition, and which may be used in ordinary buildings or for submarine work. — *Stone Trades Journal.*

[To be continued.]

Archæological Research in California. — Prof. Martin Luther D'Ooge of Boston is to organize a California branch of the Archæological Institute of America, the object of which is to promote and direct archæological investigation. The institution, founded in 1879 by Prof. Charles Eliot Norton of Cambridge, has now fourteen societies in active operation. — *Exchange.*

BOOKS AND PAPERS

NOT many people could write a book of two hundred pages on the subject of Spirals,[1] and still fewer could make such a book even tolerably readable; but the accomplished author of "*Old Touraine*" has not only done this, but has produced an extremely interesting little volume. Even those who do not agree with his theory that various artistic spirals are based on natural forms, to say nothing of his "discovery" that Leonardo da Vinci applied his biological learning to the design of the spiral staircase at Blois, will find his arguments instructive and delightful, while the examples which he illustrates contain, at least, charming suggestions.

Mr. Cook disarms criticism at the outset by confessing the superficiality of his knowledge of the various sciences concerned with spirals, and, predicting that "every specialist will delightedly correct those errors which occur in ground familiar to him," he calmly leaves detractors to their enjoyment.

That the field of spiral affinities is an extensive one may be gathered from the index of the book. Under the letter R we find indexed, for example, Rabbits, Rabelais, Rata, Ravaisson-Mollien, Ravenna, Red Crag Sea, Renaissance, Richter, Rocky Mountains and Rodin; while under C, is included a range of biography from Cæsar Borgia to Cormack McCarthy, and of art from Curves in Building to Coffin-screws. When we add to this that six languages are used in expressing the various thoughts to which the readers' attention is invited, the comprehensive nature of the work will be sufficiently obvious.

To architects who are a little rusty in Greek and Latin, and need a dictionary even for German and Italian, and to whom the observation that contact parastichies may possibly be log-spirals which intersect orthogonally conveys but a feeble meaning, the most interesting part of the book will be the description of the work and character of Leonardo da Vinci, as shown by his sketches and manuscript writings, and the argument for attributing to him the spiral staircase at Blois. It is known that Leonardo came to France, at the invitation of Francis I, early in the year 1516, and died, three years later, at Amboise, twenty miles from Blois. The new wing of the château at Blois, containing the famous exterior staircase, was in process of construction when he arrived in France, and the records show that the first payments for the work were made, out of the royal treasury, in July, 1516, a few months after Leonardo's arrival in France. Mr. Cook says that the staircase might perfectly well have been added to the design after the wing was begun, which is true enough; but such important additions are not usually made to a building, at least under the care of such a renowned artist as Leonardo, without leaving any trace of the occurrence in history. Mr. Cook says that the statues at the entrance of the staircase are characteristic of Jean Goujon, and thinks that he "may well have been called in to put the finishing touches to a structure which a greater than he had originated." Jean Goujon was not born until after the death of Leonardo, and it is difficult to see why he should not have been called in to put finishing touches to other people's work, as well as Leonardo's.

The other evidence upon which Mr. Cook appears to rely for supporting his theory that da Vinci was the designer of the Blois staircase seems to consist in the observation that it forms a left-handed spiral, while Leonardo was known to have been left-handed; and that the arrangement of the spiral is similar to that of the shell of *Voluta vespertilia*, a Mediterranean mollusk, which da Vinci, as an enthusiastic student of nature, would probably be familiar with. He thinks, also, that the left-hand twist "satisfied Leonardo's practical sense of fitness," because it was easier to walk up such a stair, and because it gave a sense of hospitality, as the host of the mansion "could walk down it with welcoming right hand outstretched to the ascending guest, who was in his turn helped on his ascent by keeping his own right hand on the side-rail."

Even supposing that the host found it easier to hold out his welcoming right hand to his guests while descending a left-hand spiral, it seems as if the temptation to the guest to keep his right hand churlishly on the rail, instead of holding it out in response to the welcoming hand of his host, might offset the other advantage. As to the resemblance between the staircase and the shell of *Voluta vespertilia*, it would be difficult, probably, to find any spiral staircase which would not resemble some natural form, and it is hardly conceivable that an architect should go to a shell for the inspiration of a staircase, instead of laying out the treads and risers conveniently. The details of the staircase, of course, bear no resemblance to anything about a shell, nor, it may be remarked, do they bear any resemblance to the coldly classic forms which da Vinci is reputed to have preferred. As to the probability, apart from internal evidence, that Leonardo, within a few months after his arrival in France, began the execution of an important architectural work, as an addition to some one else's design, and in a style completely unfamiliar to him, without attracting the attention of any, the reader is likely to draw his own conclusions from the fact that he was unquestionably

[1] "*Spirals in Nature and in Art*": A Study of Spiral Formations Based on the Manuscripts of Leonardo da Vinci, with Special Reference to the Architecture of the Open Staircase at Blois, in Touraine, now for the First Time Shown to be from his Designs. By Theodore Andrea Cook, M. A., F. S. A. With Illustrations. New York: E. P. Dutton & Co. 1903. Price $2.50.

the most noted artist of his age, that he was over seventy years of age and in feeble health, when he came to France; that he is not known to have done any artistic work for his royal patron, much less anything so laborious as the hurried execution of the great Blois staircase; and that in less than three years after his arrival, he died, as the legend relates, in the King's arms.

IT is one of the commonest of occurrences that the reviewer has brought to his attention at the same time two or more books dealing with the same subject, so that there is nothing unusual in the almost simultaneous appearance of two books that deal with wood, one published in London, the other in New York. Apparently, in each case, one of the objects most clearly had in view was to give in simple form instruction that might lead to the identification of woods that are to be found in the open market and their consequent employment for those specific uses for which Nature had adapted them.

To a certain degree the methods of treatment adopted by the authors are similar but not identical, and as Professor Snow's book[1] is devoted almost absolutely to the consideration of the woods of the United States it may be said that his book affords a very desirable supplement to the more comprehensive one prepared by Professor Boulger.[2] In every way the former is an admirable piece of bookmaking, well planned, systematically arranged, the system being adhered to from cover to cover, well printed and above all illustrated in a most interesting and intelligent manner, for the possibilities of photography and photo-engraving have been availed of to very sensible purpose.

In his modesty Professor Snow does himself an injustice when, in his preface, he speaks of his work as an "untechnical presentation," for to us it seems technical in a very satisfactory and workaday manner. A better idea would have been conveyed if he had used the term "non-botanical," for he has made little use of the technical terms ordinarily found in books on botany and dendrology, and this it was comparatively easy to do as he was not concerning himself with the manner of plant growth but rather with the aspect and use of plant growth after it had reached the stage of the manufacturer's raw product. This absence of scientific phraseology and botanical terminology, together with the systematic and coördinated arrangement of statement describing the several varieties and species of wood, gives the book an extremely workmanlike and usable air. But it is the character of the illustration that lends special value and interest, for, as the illustration here annexed shows, the conception has been to exhibit upon each plate a view of the growing tree, which gives the general shape and shows how the foliage masses, the leaf and fruit, a fragment of the trunk and bark at a larger scale and a section of finished wood, sometimes transverse, sometimes longitudinal.

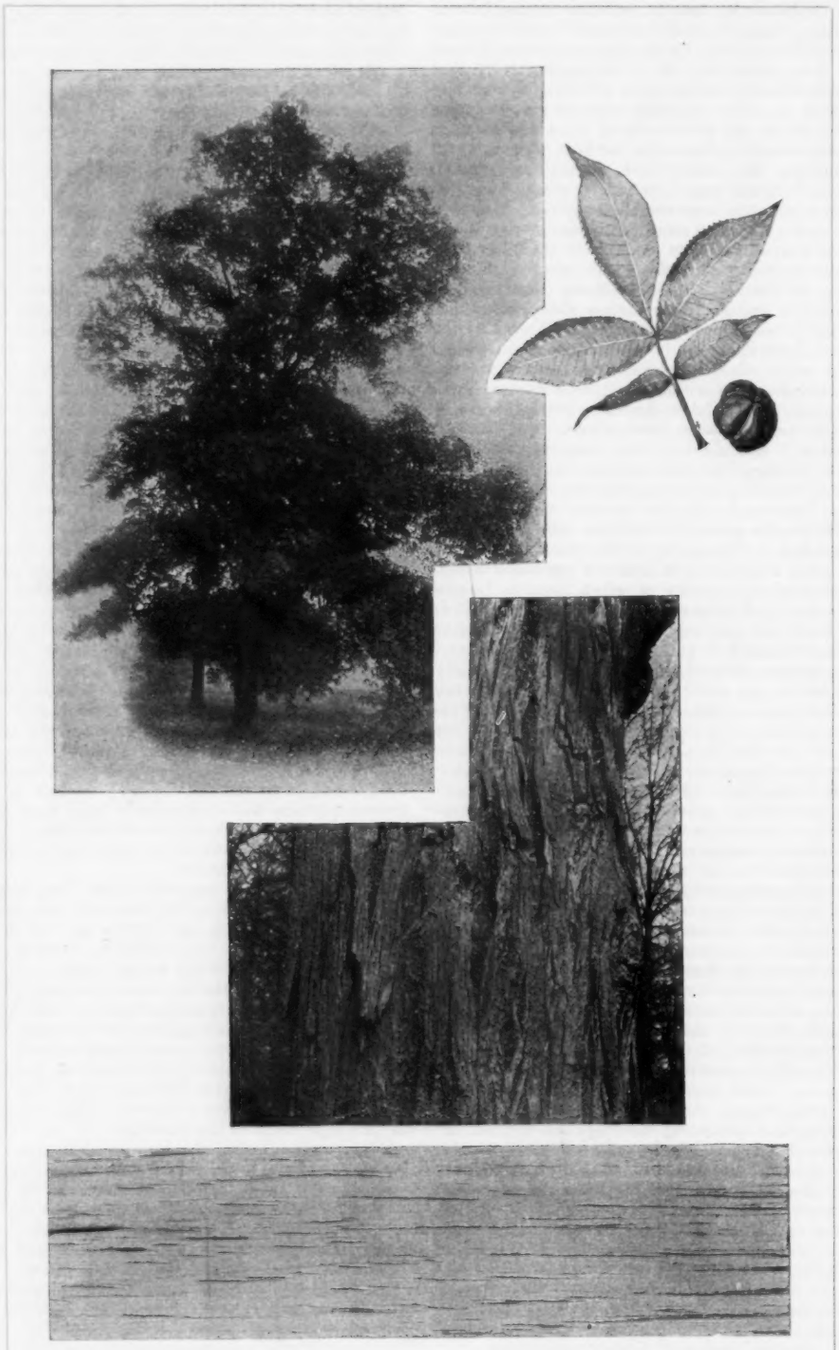


Plate 10. Hickory. From "*The Principal Species of Wood.*"

As a matter of fact, the illustrations are not absolutely comparable with one another, since sometimes the tree is shown in foliage and at others with leafless branches, and this suggests that it would have added materially to the value of the book for certain purposes,—for "nature study" and for "timber running," for instance,—if the same tree had been shown on each plate in leaf and with branches bare.

Professor Boulger, on the other hand, being Professor of Botany and Lecturer on Forestry in the City of London College, quite naturally approaches his task from the botanical side, and though his second Part is in matter and arrangement fairly analogous with Professor Snow's descriptive tabulations, he gives in Part I a large amount of interesting information as to the growth and structure of woods which, as these matters have a bearing on the manner in which manufactured woods wear, is entirely in place in such a book, and as these chapters are illustrated with admirable cuts showing at large scale the sections of different wood growths at different stages, one gets a very satisfactory idea of the vascular systems of large plants and no longer wonders why woods shrink, warp, twist, crack and split.

---

[1] "*The Principal Species of Wood*": their Characteristic Properties. By Charles Henry Snow, C. E. Sc. D., Dean of the School of Applied Science, New York University; M. A. S. C. E., etc., New York: John Wiley & Sons. London: Chapman & Hall, Ltd. 1903. Large 8vo. Price $3.50.

[2] "*Wood*": a Manual of the Natural History and Industrial Applications of the Timbers of Commerce. By G. S. Boulger, F. L. S., F. G. S., F. R. H. S., A. S. I. Professor of Botany and Lecturer on Forestry in the City of London College, and formerly in the Royal Agricultural College; Author of "*Familiar Trees*," "*The Uses of Plants*," etc. London: Edward Arnold. 1902. Longmans, Green & Co., agents for the United States.

In other chapters he gives very sensible and understandable information concerning the defects of woods, and the animate life that attacks them; concerning the selection, seasoning, storage and durability of woods and the best of the methods of impregnation and seasoning; concerning the uses of woods,— listing under the heads of ship-building, mining, building, furniture, and so on, the woods that are most commonly used in the several industries, often hinting at the reasons for their selection: and here can be found many a bit of curious information as, for example, that "willow is still occasionally used for flooring" because it does not splinter, and that Grinling Gibbons largely used linden wood for his carvings. Another short chapter is devoted to the present condition of the timber supplies in different parts of the world, and it is full of warnings and forebodings, expressed or implied. The first Part closes with a short chapter on testing woods and the following two hundred or so pages of the second Part are devoted to descriptions of some seven hundred and fifty varieties of woods used by man in different parts of the world. Professor Boulger says that although he catalogues only 750 varieties, "there are, undoubtedly, several thousand woods used in various parts of the world," a statement which does not seem at all unlikely as we note that Professor Snow in his book states, on the authority of Mr. B. E. Fernow, head of the United States Division of Forestry, that there are in the United States 495 known varieties or, as Prof. Charles Sargent puts it, 422 distinct species.

As the Englishman's book undertakes to cover the entire world his list of woods is the more numerous and, perhaps, because of this it was not possible for him to adopt the semi-tabular form of descriptive statement which makes the American's so perspicuous.

One of the chief aims of each writer has been to produce a book that would have a use in what we may call commercial life and so each has been careful to state the uses to which a given wood can be put. But in commercial life we fancy the problem less often presents itself to the intending user of wood thus: "Hello, here's a piece of wood; when I find out what it is then I can discover what use best to put it to," but rather thus: "I have got a certain article to make, now what is the best wood to use?" Consequently, an indexed tabulation of manufactured articles showing the wood most suitable for each case would have added materially to the working value of each book. In a considerable degree, Professor Boulger's chapter on the "Use of Woods" covers the point, but what would be more useful still is a complementary index or tabulation which could easily be complied from the statements that both authors give under the heading "Use."

SOCIETIES

THE ENGINEERS' CLUB OF PHILADELPHIA.

AT the last meeting Mr. Henry G. Morris read a paper on "A Consideration of the Gaseous Fuel Problem." After tracing the history of the use of artificial gas from the first efforts to evolve it from coal, about 1789, and showing the popular prejudice against it that had to be overcome in the earlier years of its use, Mr. Morris took up the question of the application of gas as fuel. The use of crude fuel for domestic purposes, with all the disadvantages of comparatively expensive handling, the lack of economy from burning it in ordinary stoves and heaters, the labor involved, and finally the cost of disposing of the refuse, naturally lead to a consideration of conditions which might exist with an adequate supply of fuel in the form of gas. That the consumption of gas for fuel is increasing is shown by the fact that some 40,000 gas-stoves are now reported to be in use in Philadelphia. It is perhaps a safe assumption that ten times as much fuel is required for heating and cooking as is required for lighting, so that there would appear to be a very large field of operations to be covered by the producer of a gaseous fuel.

Development of the by-product of coke-ovens would seem to offer the solution of the problem of furnishing gaseous fuel at a low rate of cost, and methods of distribution to comparatively long distances make it possible to locate the producing plants at convenient geographical and commercial points. That there is a great waste of fuel where the gas from the ovens is not utilized is shown by figures given for the bee-hive ovens between Altoona and Pittsburgh. These ovens probably make 20,000 tons of coke per day, from which about 100,000,000 cubic feet of gas discharge into the air. This gas, if converted into power through gas-engines, would represent 5,000,000 horse-power-hours, or the effort of about 104 gas-engines of 2,000 horse-power each. Manufacturers of gas apparatus are now offering to guarantee the production of a horse-power-hour for one pound of fuel — a result not at present attainable through the medium of steam-engines and boilers, except by the most complex type of engine. Mr. Morris exhibited and explained in a general way some slides showing a number of large plants for the manufacture of gas and coke. Among these was the large plant at Everett which, properly speaking, is a coke and chemical works producing ammonia, coal tar and derivatives; the gas being considered a by-product.

J. O. CLARKE, *Secretary.*

MEDALS FOR SARGENT AND ABBEY. — The German Emperor has conferred gold medals on John S. Sargent and Edwin A. Abbey, the American artists. — *Exchange.*

ILLUSTRATIONS

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

RHODE ISLAND STATE BUILDING, LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, MO. MESSRS. THORNTON & THORNTON, ARCHITECTS.

THE late Bruce Price's first contribution to the *American Architect* was published in August, 1876, and during the next ten years he was a frequent and valued contributor; but unfortunately in later years his contributions have been less frequent than was desirable, so that much of his later and most interesting work has never been recorded in these pages. It has seemed worth while, therefore, to publish in this issue a considerable number of drawings which represent the work done by this distinctly able man who among other good qualities had, perhaps, the surest grasp on the problem of designing a high building.

LAW BUILDING, 259 FIFTH AVE., NEW YORK, N. Y. MR. BRUCE PRICE, ARCHITECT.

DESIGN FOR A CITY HOUSE. MR. BRUCE PRICE, ARCHITECT.

"THE HENDRIK HUDSON," YONKERS, N. Y. MR. BRUCE PRICE, ARCHITECT.

Additional Illustrations in the International Edition.

OFFICE-BUILDING, WASHINGTON, D. C. MR. BRUCE PRICE, ARCHITECT.

INTERNATIONAL BANKING & TRUST CO.'S BUILDING, BROADWAY AND CEDAR ST., NEW YORK, N. Y. MR. BRUCE PRICE, ARCHITECT.

ST. JAMES BUILDING, NEW YORK, N. Y. MR. BRUCE PRICE, ARCHITECT.

MURAL MEMORIAL TABLET. MR. BRUCE PRICE, ARCHITECT, NEW YORK, N. Y.; MR. J. MASSEY RHIND, SCULPTOR.

SKETCH FOR A NEW YORK OFFICE-BUILDING. MR. BRUCE PRICE, ARCHITECT.

MISSOURI PACIFIC BUILDING, ST. LOUIS, MO. MR. W. ALBERT SWASEY, ARCHITECT.

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.*]

ARCHITECTURAL INSTRUCTION AT CORNELL.

ITHACA, N. Y., July 3, 1903.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — I am quite behind the times with my technical reading and for that reason have only now gotten around to the *American Architect* of June 6, wherein is your editorial comment on the alternative course in Architecture at Cornell.

I do not know how the "newspapers" came to take up such a matter, because it has never been published except in the regular Announcement of Courses issued this spring as supplementary to the general University Register, and if they got it from that, there must have been gross carelessness or deliberate malice behind the interpretation in order to give the impression that you comment upon so seriously, and so unfairly to the College. I am mailing you under separate cover a copy of the Announcement of Courses referred to and you will find an outline of the Courses offered in the College of Architecture on pages 98–103.

Your editorial convicts you of knowing practically nothing in detail of our curriculum and entrance requirements, and for that reason I beg that you will pardon me if I ask you to go into the matter with me at some length. I shall be as brief as possible and shall leave volumes unsaid, but I should like to touch upon a few points that you apparently ought to know in order to be fair to us.

First. — Our entrance requirements in mathematics and language are higher than for any other school of like kind in this country. We require, for entrance, plane and solid geometry, elementary and

advanced algebra, and plane and spherical trigonometry. We also require, for entrance, as much language as is taught in any other school of architecture that I know of.

Second. — In our regular course (Course A) that has been established for several years, we require five recitations a week throughout the first year in analytic geometry and calculus. Most of the older schools teach analytic geometry, but only two of the older schools besides Cornell teach any calculus to architects.

Third. — The descriptive geometry of which you make special mention in your criticism is a thing that we regard as both elemental and fundamental. It lies at the foundation of all projective drawing, and we give it in the first half of the first year, whereas I note that at least one of the other leading schools for some reason postpones it until the senior year.

Fourth. — Aside from the question of pure mathematics we teach fully as much applied mathematics in the way of mechanics, strength of materials, etc., as any of the other schools; and in that side of the work relating to the ordinary details of office practice such as working drawings, construction details, etc., we give much more than any other school; and, furthermore, *all* of our students, regardless of the direction in which they may desire to specialize, are required to take all of this branch of the work including the mechanics, etc. The head of one of the leading schools of architecture in a personal conversation not very long ago, requested me to give him a description of this part of our work. While complying with the request, I noted a growing nervousness that finally reached a climax, and he blurted out with the greatest of impatience, "But, Martin, that isn't *architecture*. It is all right enough in its place, but its place is in the office and not in the school." He then went on to say that the schools should teach the *Art* of Architecture and let the men learn these purely practical and more or less routine things in the offices after leaving college. To a certain extent he was right. Until within a few years architecture has been taught in this country as a branch of engineering rather than as a fine-art, but in the natural and inevitable reaction the tendency in the modern schools is toward the other extreme. Here at Cornell we lay great stress upon the training in design, but we hold that no design can be good unless founded upon sound construction, and for that reason try to teach both sides of the work adequately. Our entrance requirements had to be materially raised to give us the time, but we are satisfied to let the results speak for themselves.

Now as to the Alternative Course, what it means and the reason for it: —

All of our students in both the old course (Course A) and in the alternative course (Course B) must pass the same entrance examinations, embracing mathematics as before mentioned. Among the men thus entering and passing the higher algebra, trigonometry, etc., we have occasionally found one who showed exceptional ability in drawing and design, but was utterly unable to cope with the mysteries of calculus. (This, of course, does not in any way take into account the many who fail in everything or simply get through on the narrowest possible margin.) In the case of these exceptional men there has been no alternative but to drop them or, finally, to make exceptions in their cases and allow them to substitute something else for mathematics after having tried for several years to do the mathematics (calculus). All of this naturally caused a great deal of trouble for the student and after practically wasting one-third of his time for two or three years trying to do his mathematics, he would still be obliged to do an equivalent amount of work for substitution, and it must almost inevitably result in his requiring an extra year for graduation.

By eliminating the analytics and calculus from the course we give this man a chance at the very beginning to make a choice, and we show him a way to graduate with his class in the regular four years. It was necessary, however, that this alternative course should not be made too easy and attractive, if it were to serve its real and legitimate purpose and save the men who were strong enough in design to offset their weakness in mathematics. For that reason we very materially raised the requirements for graduation in design in this course. The regular student in Course A must do all the problems in design issued to his class through three terms of first-class design, and among these he must render all of them satisfactorily and bring not less than seven of them up to a "mention" grade. In the alternative course (Course B) the student must do all of the problems in first-class design issued through a period of four terms, must render all of them satisfactorily, and must bring not less than fourteen of them up to "mention" grade. When I tell you that there was not a student in the graduating class of this year who had the requisite number of "mentions" to graduate on the basis of Course B requirements, you may understand that this alternative course is not the makeshift catering to incompetence that you seem to have imagined from the "newspaper" reports.

I am sending you also a copy of our 1903 book showing the work of the College. As this will probably not go out until early next week you will not get it immediately, but I wish that you would examine it carefully and note somewhat of the standard and the scope of our work. We believe that our standards here are high and we mean to keep them going up rather than down. Our very high entrance requirements enable us to give a half year more technical work than any other school, and that, too, without any sacrifice of the so-called general-culture studies.

I must again apologize for taking so much of your time, but I trust that you will now understand us better and that you can see your way clear to correcting your June 6 criticism. Thanking you for any favor in that direction, I am yours very truly,

CLARENCE A. MARTIN.

NOTES AND CLIPPINGS

ANECDOTE OF R. M. HUNT. — Mr. Hunt was in Paris one time on a visit, and walking with a French architect through the Louvre, when the two chanced to meet a Londoner whom his friend knew. Mr. Hunt was introduced, but the Englishman did not catch the name. After some conversation, partly in French and partly in English, Mr. Hunt chanced to speak of his New York office, when the Londoner exclaimed: "I say, but you are enterprising! So you have a New York office, too?"

"Why on earth shouldn't I?" replied Mr. Hunt with such quickness that it almost cut the Britisher short.

"Yes! yes! But isn't it a bit odd that a Frenchman should have a New York office? Don't y —"

"Frenchman! Whew!" and Mr. Hunt drew in his breath, as if to whistle. "My dear fellow, I'm a Yankee, dyed in the wool, a yard wide, a full fledged, brimful, running over, from my hair down, from my soles up Yankee — an American — an American Yankee!"

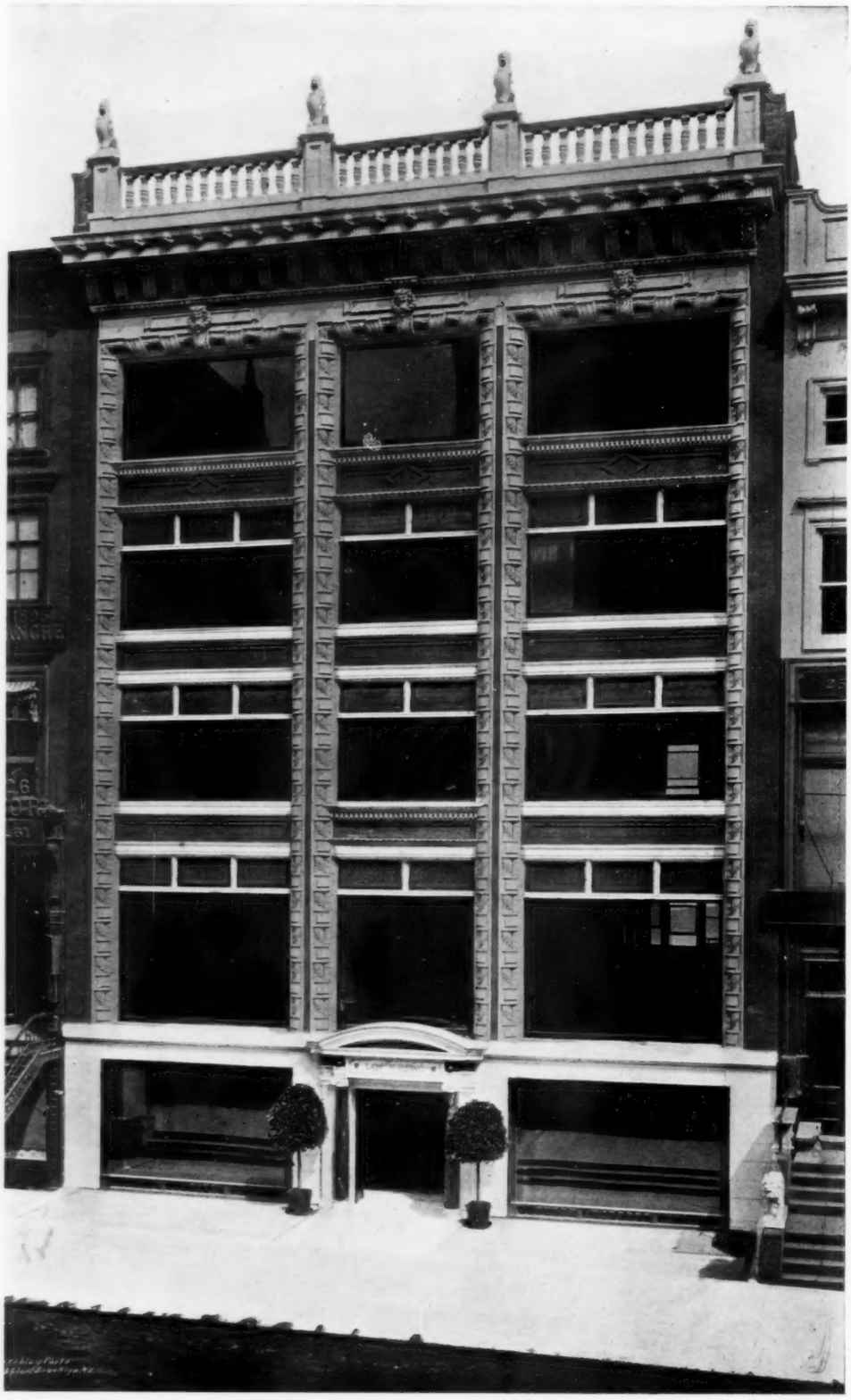
The words followed each other with such cyclonic force that "it blew away the London fog," as Mr. Hunt expressed it in telling the story afterward. — *N. Y. Tribune.*

DANGERS TO NIAGARA. — The nineteenth annual report of the Commissioners of the New York State Reservation at Niagara has been received. It is the longest document ever issued by the Commission, as well as the most interesting. The report says that the danger which threatens the integrity of Niagara Falls is not merely theoretical, but is a very substantial reality and proceeds from three sources: *First.* — From the power companies now in operation on the American side, which take from the Niagara River between seven and eight million gallons of water a minute, or about six per cent of the total flow over the falls. *Second.* — From the construction of commercial and drainage canals, which will divert the waters of the Great Lakes from their natural outlet by way of the St. Lawrence system to that of the Mississippi. The Chicago drainage canal, designed to take 600,000 cubic feet a minute from Lake Michigan, is a case in point; and among other suggestions which have been advanced is one for a canal across the State of Wisconsin and from Lake Michigan to the Mississippi, and another for a canal from Lake Superior at Duluth to the Mississippi. *Third.* — From Canadian enterprises, like the Welland Canal and the proposed canal connecting the Georgian Bay with the Ottawa River; or, to come nearer to Niagara, from the Ontario Power Company and the Canadian Niagara Power Company, whose works are now in course of construction within sight of our reservation, and from a third Canadian corporation, to which the Commissioners for the Queen Victoria Niagara Falls Park have recently granted a similar privilege. The report has a chapter on the Canadian park, in which it says: "Great as has been the regret of this Commission at the action of the past New York Legislatures in permitting the diversion of water from the falls, a keener regret has been caused by policy of the Canadian Government, for the latter has not only granted the right to subtract a large volume of water from the falls, but it has also permitted the power companies to invade the Victoria Park and erect their unsightly structures in full view of both the American and Canadian reservations." — *N. Y. Sun.*

ST. LOUIS FAIR HORSE-POWER TO BE FORTY-FIVE THOUSAND. — An idea of the immense amount of power to be used at the St. Louis Exposition may be obtained from what Thomas M. Moore, chief of the department of machinery, told about it at the Manhattan lately. Said he: "At the Chicago Exposition 12,000 horse-power was used in running the whole plant, at Buffalo 11,000 horse-power was required, but St. Louis will use 45,000 horse-power. To run the cascades and water features it will be necessary to pump 90,000 gallons a minute, as against Buffalo's 7,000 and Chicago's 4,000 gallons. The pumps for the cascade, which is 50 feet wide at the top, will have to pump against a head of 150 feet. The Exposition will make its own gas and briquettes for fuel. It is the first to do this. The St. Louis Fair will use more power for incandescent lights alone than was required to light the whole Chicago Exposition; 15,000 horse-power will be devoted to this purpose. The extent of the St. Louis ground is 1,200 acres, as compared with the 800 of Chicago. A comparison of these figures will show that the magnitude of universal expositions is constantly growing." — *N. Y. Tribune.*

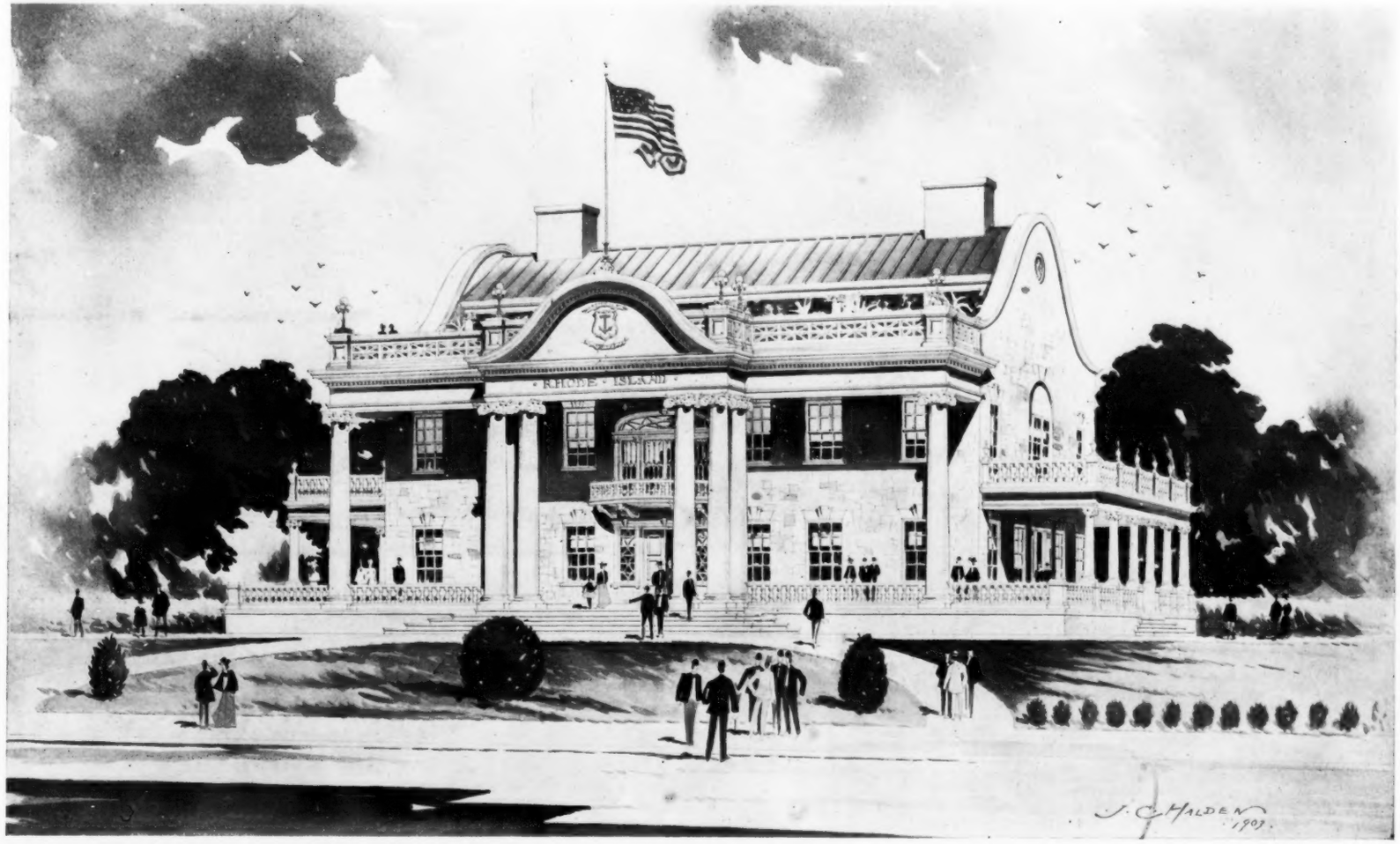
STATUE OF WASHINGTON FOR ST. PAUL'S CATHEDRAL. — At a meeting of the Executive Committee of the Pilgrims' Club July 15 a committee was appointed to give effect to the recent suggestion that a statue of George Washington be erected in London. It was decided that the subscriptions should be entirely confined to British subjects. Archdeacon Sinclair in submitting the plan to the club, said: "Englishmen have at last fully recognized the great qualities of Washington I feel assured that nothing will be more popular in this country than such a tribute to that great man of English birth [*sic*], who has done so much for the world's history, not only for the young nation across the sea, but for Great Britain as well." Archdeacon Sinclair announced that he was authorized to offer a place for the statue in St. Paul's Cathedral. — *Exchange.*

S. J. PARKHILL & CO., Printers, Boston, U. S. A.



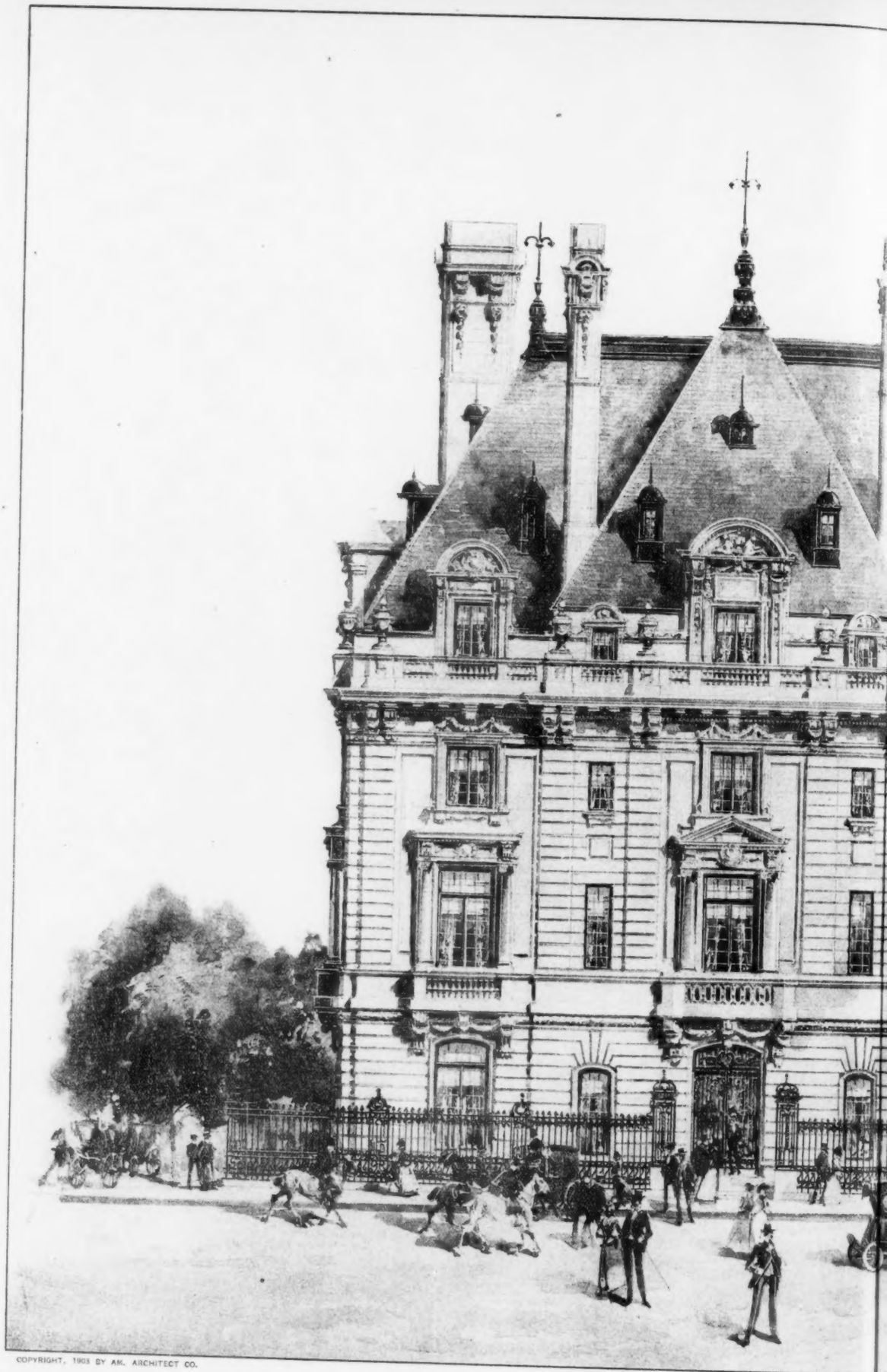
LAW BUILDING, 259 FIFTH AVE., NEW YORK, N. Y.

BRUCE PRICE, ARCHITECT.



RHODE ISLAND STATE BUILDING: LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, MO.

THORNTON & THORNTON, ARCHITECTS.



DESIGN FOR A
BRUCE PRICE,

HELIOTYPE CO., BOSTON.

N FOR A CITY HOUSE.
UCE PRICE, ARCHITECT.

"THE HENDRIK HUDSON," PARK HILL, YONKERS, N. Y.

BRUCE PRICE, ARCHITECT.

The American Architect and Building News

ADVERTISERS' TRADE SUPPLEMENT

No. 255 SATURDAY, AUGUST 1, 1903 VOLUME LXXXI No. 1440

FOR BEAUTY'S SAKE.

A WOMAN'S gospel should be, to be as cleanly, wholesome and lovely in body as in mind. Nothing will more readily improve her health and beauty than the thorough cleanliness and increased circulation resulting from the daily use of a shower-bath. Life itself takes on added pleasures from the tonic effect of the daily shower. It invigorates, renews vitality and strengthens the heart action, by increasing the surface circulation, all of which stimulate the appetite and improve the general health.

Beauty depends more upon health than anything else, and one of the best methods of gaining and retaining perfect health is to bathe, and bathe often, once a day always, but twice is much better.

Those of healthy or robust constitution may take a shower-bath as cold as they like, but it should always be followed by a brisk "rub-down" with a coarse towel until the skin fairly glows. It should be noted, however, that the lower the temperature of the water, the shorter should be the duration of the bath.

Hot-water tub-baths are debilitating, and should never be taken unless followed by a cold shower, which is the best safeguard against the contraction of a cold.

The "Standard" Portable Shower-bath is in daily use by thousands who have learned the value of physical culture followed by a shower. All agree as to the permanency of its strengthening and invigorating effects.

No bathroom is completely equipped if a shower-bath is absent. The "Standard" Portable Shower is an ideal fixture for those who live in rented houses or apartments. It is, as its name implies, portable, easily put in place or removed. It is inexpensive when compared with the permanent showers, and though portable, its operation is just as efficient. If you move it is not a part of the permanent plumbing to be left for the next tenant.

To be most beneficial water from a shower must fall from a distance and with force. The "Standard" Portable Shower fills these requirements exactly. The rubber tubing, by which the shower is supplied, is 6 feet in length, permitting the shower to be hung at almost any height desired. The sprinkler is of the needle-spray type, throwing a fine spray of water, resulting in a slightly irritative but extremely pleasant effect upon the surface of the body. Yokes, sprays, hand sponges, etc., are all but tame substitutes for a genuine "Standard" shower-bath.

Women frequently object to the use of a shower-bath on account of the wetting of the hair. In order to overcome this prejudice, we furnish, free of charge, with each shower, a rubber cloth cap, of the highest grade and quality, through the use of which the wetting is obviated. To most women the shampooing of their hair is a tedious and vexatious task, but not so if they use a shower-bath, as a much more satisfactory shampoo may be had in five minutes with a shower than in half an hour without. The "Standard" Portable Shower is worth all it costs for this purpose alone.

The "Standard" Portable Shower is supplied with patent needle-spray, with improved air-valve; also best white rubber supply-tube with patent "holdfast" which readily slips on or off the nozzle of any regular bath faucet. The fixture is of rigid construction and made from the best brass tubing, highly nickel-plated.

The curtain is of superior quality rubber cloth, full size, and attached to the shower with improved nickel-plated brass hooks.

All material entering into the construction of "Standard" Portable Showers is of the highest quality, and each one is sold with our absolute guaranty covering workmanship and material.

No bathroom is completely equipped without some style of shower. To those who desire the more elaborate permanent fixtures we call attention to our line. We make a specialty of building showers to order, any shape or size, and to fit any space for any purpose.

The luxury and pleasure of a shower-bath is a revelation to those not already acquainted with its charming delights.

STANDARD SANITARY MFG. CO.,
PITTSBURGH, PA.

WHERE TO USE MASON SAFETY TREAD.

APPLY it to interior stairs, whether of wood, iron, cement, or stone. For a tread surface it is better than any of these materials, safer and more durable, neat, odorless and noiseless. Wood, slate and marble wear hollow and shelving; iron becomes dangerously smooth in a short time; rubber gives off a disagreeable odor, and wears to a ragged condition, when it is likely to trip you up. Mason Safety Tread protects the stairs to the extreme edge, and being all metal is good for many years' wear.

Apply it to exterior stairs and to the worn borders of sidewalk lights. It does not become slippery when covered with frost or light snow, hence avoids the use of the awkward and cumbersome storm steps so common in northern cities.

Apply it to worn stairs of any kind, and make them level and safe. We'll tell you how.

Apply it in vestibules, upon thresholds, elevator-landings and inclined passages in stores.

Embedded at intervals in artificial stone sidewalks and between the lenses of vault lights, it serves a useful purpose, especially upon an incline.

It is the safest and most durable material known for use upon the steps of railroad and street cars.

It is needed wherever there is a surface which it is desirable to render non-slippery.

The Mason Safety Tread is extensively used in England, France, Germany, and in thirty-eight States of this country, including all the large cities. It is endorsed and specified by the best architects and engineers, and used by the owners of good buildings.

The United States Government is a large user in public buildings and upon the decks and ladders of all the vessels of the new navy.

The elevated railroads in New York, Boston and Chicago are large users, as nothing is so good and so durable for protection to the stairs of their stations, whether of wood or iron.

The New York Rapid Transit Subway Commissioners are embedding this Safety Tread in the front of all cement stairs in their stations.

The railroad depots in many large cities have their stairs equipped with Mason Safety Tread.

Several hundred school-houses, court-houses, and other municipal and county buildings are equipped with Mason Safety Tread.

Owners of factories, bank and office buildings, and all the principal department-stores use Mason Safety Tread and believe in it, for it saves wear and prevents accident.

Thousands of steam and street railroad car-steps on the principal lines throughout the country are covered with Mason Safety Tread, because it is the best and cheapest provision against slipping.

Steps in power-houses, often made slippery by drippings of oil, are safe when protected by Mason Safety Tread, because oil has no effect upon its grooved and leaden surface.

Mason Safety Sidewalk Lights and Coal Hole Covers protect against the danger of slipping in the same manner as the Mason Safety Tread. They are made without pegs or knobs, and furnish absolute security.

Catalogues, blue prints, or any required information furnished on application to any agent of the Company, or to

AMERICAN MASON SAFETY TREAD CO.,
40 Water Street, Boston, Mass.

STEEL FURNITURE AND OFFICE EQUIPMENT.

THE LATEST CONCEPTION OF THE BERGER MFG. CO.

In bestowing upon their latest and most popular creation the name "The Armor Plate of Modern Business," those famous artificers have made a most happy selection and certainly a more fitting one could not have been chosen from among the hundreds of titles of effective suggestions for their latest effort in metallic construction than that typifying proof against destruction of valuable papers, etc., under any and all conditions.

Steel Vertical Letter-filing Cabinet as depicted on page xvi is of graceful outline, and has that character of individuality which stamps it as having been wrought out by the most skilled workmen. The Berger Mfg. Co. prides itself upon employing only those who have been tried and tested at the bench or before the machine, and not until he has demonstrated to the full satisfaction of their superintendent that he is fit for the position does a mechanic secure employment at this concern's great factory.

"Upward and Onward" has ever been their motto, and not content to let well enough alone each succeeding season has shown the results of the ideas gathered in the preceding. The new line shows the same steady advancement that has kept the Berger Mfg. Co., Canton, O., in the forefront of America's great Steel Specialty manufacturers.

In the face of reputation already enjoyed by this firm, and fresh laurels which it is adding from day to day, it seems unnecessary to caution the enterprising merchant to grasp the first opportunity to place their goods in stock and also order in good time.

MECHANICAL AND ELECTRICAL EQUIPMENT OF A COTTON-MILL.

The mechanical and electrical equipment of the cotton-mills of the Davis Mill Co., at Fall River, Mass., is in many ways exceptionally up-to-date, including a fan-and-heater system of heating and ventilation, induced-draft in place of a chimney and electrical motor-drive throughout. To provide flexibility in the boiler plant and insure against shut-down, the induced-draft plant has been installed in duplicate. Two 7-foot blast-wheels, running in three-quarter, steel-plate housings, are driven by centre-crank, horizontal engines. The fan-wheels are overhung in the housings and are furnished with special, wide, water-cooled bearings. The engines themselves are provided with extended shafts upon which a pulley is mounted between each fan bearing the respective engines. These pulleys are in reality the flanges of the couplings of the two parts of the shafts, the belts running directly on the flanges. They are used for driving the economizer scrapers.

The air connection between the fans contains a flat swinging damper, which is so arranged that either fan can be shut off and the other run separately if desired. The outlet connections are likewise provided with dampers and the operating attachments are so placed that both can be changed at once by hand. The engines receive steam at eighty pounds and are furnished with a balanced valve which can be used in connection with a damper regulator.

The heating-plant of the Davis Mills is a duplicate of that installed at the Arkwright Mills some years ago. It consists of a large exhaust-wheel drawing air through a steam-pipe heater. The fan-wheel is provided with one tight and two loose pulleys and the engine has an extra wide, flat-face fly-wheel for shifting the belt. A second belt connects the fan pulleys with the line-shafting of the mill. This arrangement makes it possible in the summer-time to run the fan from the line shaft, thus taking advantage of the economy of the large mill-engine, while in the winter when the exhaust of the fan-engine can be utilized in the heater, or at night when the large engine is not running, the fan is driven by the fan-engine.

The heater is built up of 1 inch pipe erected on case-iron sections which rest at one end on ball bearings to allow for expansion and contraction. It is so arranged that the exhaust steam from the engine can be used entirely in one group of sections, making it possible to condense all the exhaust before it is necessary to use any direct steam, which is added at a reduced pressure when necessary. The outfit also includes a Kendall receiving-tank, with a water-gauge and a safety-valve, and a duplex Worthington steam-pump. The heating-apparatus will heat the mill to seventy degrees Fahr. when the temperature outdoors is zero.

The electrical equipment consists of two belted direct-current generators, one of 50 kilowatts and one of 75 kilowatts, operating at 125 volts, no load, and compound-wound. These generators supply current for lighting and for a 27-horsepower motor and one of 43 horse-power. The oiling devices of the motors are so arranged that they can be hung from the ceiling. The above apparatus has been furnished by the B. F. Sturtevant Co., of Boston, who also designed and constructed the heating and ventilating and mechanical draft plants.

DIXON'S PIPE-JOINT COMPOUND.

Dixon's Graphite Pipe-joint Compound has been on the market now more than twenty years and in that time has fully demonstrated its tremendous superiority over red lead for the purpose intended.

The reason for this superiority lies in the facts that graphite is a lubricant, and it does not form with the oil a hard, brittle compound as red lead does. When Graphite Pipe-joint Compound is used, each joint may be made up on an average of half a turn more than with red lead, and this is simply due to the lubricating quality of the graphite.

After a short time the mixture has hardened into a tough, elastic, leathery mass, instead of a hard, brittle one, as in the case of red lead, and when it is desired to take the joint apart, this yields at the application of very moderate force. The compound may be used wherever red lead is used, and in other circumstances where red lead is not at all suitable, as on gaskets.

This compound rubbed on the surface of gaskets enables them to be removed easily, so that they may be used again, thus effecting a considerable saving. *Bolts inserted in green woodwork covered with it are prevented from rusting*, and so are easily removed. Tap bolts may be made to fit very tightly and yet be put in and taken out without danger of twisting off the heads.

The ground surface of water-tube caps is kept in prime condition by its use. The manufacturers of this type of boilers are large users of it. Ground face-flanges are now largely used. A thin coating of Pipe-joint Compound on these prevents rusting and adhesion.

In general, wherever you have any surfaces which are in contact, and where you don't want them to stick, use Dixon's Pipe-joint Compound.

Although the cost of Pipe-joint Compound for use in any one establishment may not be a very large item, yet economy even in small things should be practised. Red lead costs nearly twice as much as Dixon's Pipe-joint Compound, not by weight, but by volume. A mixture of red lead and oil is about four times as heavy as a similar mixture of graphite; hence, to perform the same service, four times as much by weight must be used. There is also a great saving in another way. Mixtures of red lead and oil get too hard for use, if not used shortly after mixing, and have to be thrown away. This does not occur with mixtures of graphite and oil. Simply return what is not used to the package and cover with a little oil or water and it keeps indefinitely.

This is a material worthy of your attention and it will save you dollars and no end of trouble.

JOSEPH DIXON CRUCIBLE CO.,
Jersey City, N. J.

TIN ROOFS.

"You'll find, m'son, that things come out about even in this world, whether you are the man who puts the roof on or the man in the revolving chair underneath it. Tin that costs less is worth less, and sometimes worthless. Don't be deceived by looks, because looks, even in tin, are only skin deep, and are deceiving.

"Which reminds me of Jonas Darby, or rather, of Darby's little girl, Polly.

"Polly was keeping store, the way a kid will, and selling lemonade at so many pins a glass. I was going past the house and saw her stand out by the front gate. I just stopped to jolly her a little and buy some lemonade. She had two buckets of her own lemonade. One of them was marked, 'three pins a glass,' and the other, 'five pins a glass.' I bought a glass of each kind just to see what the difference was, but they both tasted alike to me. So I said: —

"'Say, Polly, what's the reason the lemonade in this pail is cheaper than the other?'

"'Cos, the puppy fell into that one.'

"That's about how it is with roofing-tin. When you run across a tin that's cheaper than 'Taylor Old Style,' you can bet that there's a puppy in it somewhere, or one has been in it.

"I never saw a tinmaker that did not claim everything, but when it comes to just talk, one fellow's talk sounds as good as another's.

"When I was young and new at this business I used to start in with the idea that the man who put up the best story put up the best tin. Well, I have worked away at it for a good many years, and now I have come to the conclusion that the best story goes with the worst tin. What is more, I have found out that the best tin has the most imitators, just as you always find the most sticks under the best apple tree.

"Some fellow that was wiser than I has said that imitation is sincere flattery. That may be true, but nobody wants the goods of a flatterer. Besides, if the qualities of a tin

are such that it makes other people imitate it, those same qualities ought to make you want it.

"For every sheet of tin you are putting on a house you are putting three on your reputation, and it is a mighty good thing for a tin-roofer to have a reputation that is at least three sheets of tin thick.

"That man whose roofs stand the weather longest can stand competition in his business longest.

"But I started out to tell you about the claims of some manufacturers, and about how much just talk amounts to when it aint backed up by tin.

"I once lived in a little town in the southern part of the State called Hallelujahville. It was a little town, and the people who lived there didn't, as a rule, have their clothes made especially for them, which was one reason why the three tailors in that town had very little to do. On this account they spent a good deal of their time sitting around the village store boasting about their business. One was a Frenchman, one was English, and the other was an Irishman.

"One day, in the course of an argument, the Englishman insisted that he had such a good eye that he could look a man over and make a suit that would fit him.

"The Frenchman broke in by saying that if he just caught a glimpse of a man going around a corner he could make a suit that would fit him.

"The Irishman, who hadn't had an order for a suit of clothes from anybody for two years, matched this with a statement that if he saw the corner which the man had gone around he could make a suit that would fit him.

"You will find that there are a whole lot of tin-makers who claim to make tin as good as 'Taylor Old Style,' and next to them are a whole lot of others who insist that they make tin as good as the tin that is as good as 'Taylor Old Style,' and so it goes, and the farther you get away from the real and original 'Taylor Old Style' tin, the stronger the stories you hear and the weaker the tin.

"I always have great hopes for the future of the metalworker who is building up his business-foundation on a good roofing-tin, and out of twenty years' experience I have never run across anything better than 'Taylor Old Style.'

"And the moral is: The tinner who wants to put tin in his safe should put safe tin on his roofs." — *Rufus the Roofer in "The Arrow."*

simple in construction it works in a simple, direct manner, producing the required degree of heat.

The Gurney Heater is very economical. It requires less fuel than any other heater on the market. There is absolutely no waste attendant upon its use. Its use saves time, labor and money.

The Gurney Heater is exceptionally durable. It lasts longer than any other make and always gives the best of service.

GURNEY HEATER MFG. CO.,
BOSTON, MASS.

PERSONAL MENTION.

Mr. Geo. H. Gibson has resigned as Manager of the Advertising and Publication Department of the B. F. Sturtevant Co., of Boston, Mass., to accept an appointment with the International Steam Pump Co., having offices at 114–118 Liberty Street, New York City. Mr. Gibson was formerly connected with the Westinghouse Companies' Publishing Department, of Pittsburgh, Pa., and was for two years a member of the editorial staff of the *Engineering News* of New York City.

NOTES.

The Escalator at the Twenty-third Street station of the Sixth Avenue Elevated Railroad which has been shut down recently has now resumed regular operation. Some time ago the motor driving the Escalator was connected to take current from the third rail. It was found, however, that the voltage fluctuates over a considerably wider range than had been anticipated and the shut-down was necessary in order that alterations might be made in the motor to secure better speed regulation. During the interval that the electrical changes were in progress, the receipts of the station showed a marked falling off.

The Parks & Jeeves Blue Print Co., of 34 Merchants Row, Boston, although neither the oldest nor largest firm in the business, are surely among the leaders in enterprise as their business methods and many improvements in apparatus clearly illustrate.

Within the past year they have perfected an electric printing-machine which is so economical that they are able to make electric prints at the same cost to consumers as solar prints.

Recently they have issued tickets to their customers from which the number of square feet in an order is punched. The ticket registers 100 square feet and when that amount of work has been completed new tickets may be purchased. By the use of this ticket the price of work is reduced twenty per cent from the current prices.

The American Architect and Building News

A WEEKLY JOURNAL OF CONSTRUCTIVE AND DECORATIVE ART

VOL. LXXXI.—No. 1440.] SATURDAY, AUGUST 1, 1903. PRICE, { INTERNATIONAL ISSUE, 50 CTS / REGULAR " 15 "

Topographical Index of Advertisers.

[*For pagination, see Alphabetical Index on Cover* 2.]

CONNECTICUT.

New Britain.
The Stanley Works.....[*Wrought-Steel Butts*
Stamford.
Yale & Towne Mfg. Co.....[*Locks*
Waterbury.
Benedict & Burnham Mfg. Co....[*"Benedict-Nickel" Seamless Tubing for Exposed Plumbing*
ENGLAND.
London.
Architect and Contract Reporter, The.[*Magazine*
Building News, The.....[*Periodical*
ILLINOIS.
Chicago.
Chicago & Alton Railway.....[*Railroad*
Crane Co.....[*Valves*
Hagen Co., A. T.....[*Laundry Machinery*
Northwestern Terra-Cotta Co.....[*Terra-Cotta*
Taylor, J. W.....[*Photographs*
Winslow Bros. Co., The.....[*Ornamental Iron and Bronze*
IOWA.
Council Bluffs.
Kimball Bros. Co.....[*Elevators*
MAINE.
Rockport.
Rockland-Rockport Lime Co.....[*Lime*
MARYLAND.
Baltimore.
Lafayette Mt'l and Lumber Co., The..[*Lumber*
Vale & Young.....[*Skylights*
MASSACHUSETTS.
Boston.
Amer. Mason Safety Tread Co....[*Stair Treads*
Bartlett Lumber Co.....[*Redwood Lumber*
Bates & Guild Co.....[*Books*
Blodgett Clock Co.....[*Clocks*
Broad Gauge Iron Stall & Vane Works.....[*Stable Fixtures*
Burditt & Williams Co.....[*Hardware*
Butcher Polish Co.....[*Floor Polish*
Cabot, Samuel.....[*Deafening Quilt*
Cairns, Hugh..[*Stone Carving and Modelling*
Campbell, Walter M.....[*Perspectives*
Carlisle, Pope & Co., E. A.,[*Doors, Windows, Etc.*
Columbian Marble Quarrying Co.....[*Marble Dealers*
Couch Co., S. H.....[*Telephones*
Craig, David.....[*Clean-out*
Crawford Specialty Co.....[*Traps*
Dadmun, Leon E.....[*Photography (Architectural and Commercial)*
Elston & Co., A. A.....[*Buildings Torn Down*
Erickson Electric Equipment Co..[*Electrical Contractors*
Folsom Snow Guard Co.....[*Snow Guards*
Fowle, Herbert.....[*Ornamental Plastering*
Gallagher & Munro Co.....[*Plasterers*
Gurney Heater Mfg. Co.....[*Hot-water, etc.*
Heliotype Printing Co.....[*Art Printing*
Howard Clock Co., The E.....[*Clocks*
Jager Co., Charles J.....[*Engineers*
Johnson & Co., H. A.....[*Portable Ovens*
Makepeace, B. L.....[*Blue Prints*
Marble Co., W. P.....[*Brass Finishers*
Massachusetts Institute of Technology.....[*School*
Means & Thacher.....[*Paints*
McKay & Woolner [*Contractors and Builders*
Morrill & Whiton Construction Co....[*Masons and Builders*
Olive, E. Percy.....[*Photography*
Parks & Jeeves.....[*Blue Printing*
Pearson Co., J. C.....[*Wire Nails*
Perry, W. J.....[*Dumb-waiters*
Redding, Baird & Co.....[*Stained Glass*
Robey-French Co.....[*Photographic Supplies*
Ryan, William Curtis.....[*Insurance*
Samson Cordage Works.....[*Sash-Cord*
Sleep, Elliot & King Co.....[*Modelling and Ornamental Plaster*
Spaulding Print Paper Co.....[*Blue Prints*
Standard Fire-escape & Mfg. Co.[*Fire-escapes*
Stebbins N. L. [*Photography (Architectural and Commercial)*
Sturtevant Co., B. F.....[*Fan System*
Union Brass Works Co....[*Bath tub Fixtures*
Van Noorden Co., E.....[*Skylights, Metal*
Whittier Machine Co.....[*Elevators*
Cambridge.
Goodhue, Harry Eldredge[*Memorial Windows*
Clinton.
Clinton Wire Cloth Co.....[*Metallic Lathing*
Palmer.
Flynt Building & Construction Co...[*Building Contractors*
South Boston.
Boston Flag Pole Co.....[*Flag Poles*
MICHIGAN.
Detroit.
Barry Brothers, Limited.....[*Shingletint*
Northern Engineering Works.....[*Cranes*
MISSOURI.
St. Louis.
Washington University School of Engineering and Architecture.....[*School*

NEW JERSEY.

Jersey City.
Dixon Crucible Co., Jos.....[*Graphite*
Paterson.
Passaic Steel Co.....[*Structural Iron*
Perth Amboy.
Perth Amboy Terra-Cotta Co.....[*Terra-Cotta*
NEW YORK.
Irvington-on-Hudson.
Lord & Burnham Co.....[*Conservatories*
Ithaca.
Cornell University.....[*School*
Jamestown.
Art Metal Construction Co.....[*Art Metal Work*
Long Island City.
Richey, Browne & Donald.....[*Ornamental Iron and Bronze*
N. Y. City.
Alsen's Cement Works.....[*Cements*
American Tin Plate Co.....[*Roofing Tin*
Associated Expanded Metal Co....[*Expanded Metal*
Atlas Cement Co.....[*Cement*
Brown Hoisting Machine Co., The.....[*Electric Elevator Supply and Repair Co.....[Electric Signals*
Deane, E. Eidon.....[*Colorist*
Fisher & Co., Robert C.....[*Marble*
Frink, I. P.....[*Reflectors*
Hayes, George.....[*Metallic Lathing*
Herzog Teleseme Co.....[*Elevator Signals*
Hitchings & Co.....[*Greenhouses*
Jackson & Co., Wm. H.....[*Grates*
Jenkins Bros.....[*Valves*
Jones, T. W.....[*Vases*
Kent-Costikyan.....[*Rugs (Carpets)*
Mott Iron Works, The.....[*Iron Work*
Neuchatel Asphalte Co.....[*Asphalt*
New Jersey Zinc Co.....[*Zinc White*
New York Belting and Packing Co., Ltd.....[*Interlocking Rubber Tiling*
N. Y. Metal Ceiling Co.....[*Metal Ceilings*
Okonite Co. (Ltd.).....[*Insulated Wires*
Pitt, W. R.....[*Folding-Gates*
Quimby, W. E. (Inc.).....[*Electric Pumps*
Rider-Ericsson Engine Co.[*Hot-Air Engines*
Sargent & Co.....[*Builders' Hardware*

NEW YORK.

N. Y. City.
Smith Co., H. B.....[*Steam Heat*
Smith & Co., Edward.....[*Varnishes*
Society of Beaux-Arts Architects, The [*School*
U. S. Mineral Wool Co.....[*Mineral Wool*
Van Kannel Revolving Door Co....[*Revolving Doors*
Warren Chemical & Mfg. Co...[*Asphalt Roofing*
Williams, John.....[*Wrought Metal*
Yale & Towne.....[*Hardware (Art*
Rochester.
Cutler Mfg. Co.....[*Mail Chutes*
Troy.
Globe Ventilator Co.....[*Ventilators*
Troy Laundry Machinery Co..[*Washing-Machines*
OHIO.
Canton.
Berger Mfg. Co., The.....[*Metal Ceilings*
Cleveland.
Tyler Co., The W. S....[*Ornamental Iron and Bronze*
Columbus.
Kinnear & Gager Co., The.....[*Metal Ceiling*
Kinnear Mfg. Co., The....[*Steel Rolling-doors*
Nelson Co., The C. T.....[*Capitals (Carved)*
Ohio State University.....[*School*
Marietta.
Introstile and Novelty Co.....[*Introstile*
Salem.
Mullins, W. H.....[*Architectural Metalwork*
West Cleveland.
Cudell, F. E.....[*Traps*
PENNSYLVANIA.
Ambler.
Keasbey & Mattison Co....[*Magnesia Covering*
Philadelphia.
French & Co., Samuel H.....[*Mortar Colors*
Loomis Filters Improved System.....[*Filters*
Merritt & Co.....[*Lockers (Expanded Metal*
Merchant & Co., Inc.....[*Roofing Plates*
Morse, Williams & Co.....[*Elevators*
Taylor Co., N. & G.....[*Roofing Tin*
Thorn, J. S. Co.....[*Sheet Metal*
University of Pennsylvania.....[*School*
Pittsburgh.
National Fireproofing Co.....[*Fireproofing*
Standard Sanitary Mfg. Co.....[*Porcelain Enamelled Ware*
Wisconsin Graphite Paint...[*Graphite Paints*
RHODE ISLAND.
Providence.
Narragansett Machine Co.....[*Locker*

The American Architect and Building News

IS PUBLISHED EVERY SATURDAY BY THE

AMERICAN ARCHITECT CO.,

211 Tremont St., Boston, Mass.

Advance Subscription Rates:

Regular Edition, $6.00 per year; six months, $ 3.50

[Foreign Postage, $2.00 Extra.]

International Edition, per year in advance 16.00
" " quarterly " 18.00

ALSO PUBLISHERS OF

Topical Architecture

(Monthly)

Subscription . . $3 per year

☞Payment should be made to American Architect Co. direct, either by draft or post-office order.

Address all business correspondence to the publishers direct.

Advertising Agents:

New York City: —
H. M. Carleton, Temple Court, 5 Beekman St.

Agents at Large: —
M. F. Dyer, 211 Tremont St., Boston, Mass.
F. P. Spokesfield, 211 Tremont St., Boston, Mass.

Advertising Rates: For "wants" and "proposals," 15 cents per line [8 words to the line], each insertion. 50 cents the least charge. Other rates on application.

See last or next issue for the following advertisements: —
Chicago & Alton Railway.
Crawford Specialty Co.
Cudell, F. E.
Charles J. Jager Co.
Keasbey & Mattison Co.
Morse, Williams & Co.
Northern Engineering Works.
J. C. Pearson Company.
Redding, Baird & Co.
Standard Sanitary Mfg. Co.
Thorn Co., J. S.

ARCHITECTS' REMOVALS, Etc.

JOHN MORRELL & SON, architects, wish to announce that they have purchased the architectural business from Mr. Josiah L. Rice, architect, 314-315 Howes Block, Clinton, Ia., and will be glad to receive catalogues and samples. Mr. Morrell will also retain his Chicago office. 1440

WANTED.

DRAUGHTSMAN. — Wanted, an architectural draughtsman, clever in ornamental design and color, by a firm of decorators and workers in stained-glass. A permanent position at a good salary for an experienced designer. State terms and qualifications. "Interiors," care *American Architect*. 1440

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.

Boston, Mass. — Peabody & Stearns have filed with the Department of Building Inspection an application to erect the first of the buildings for the Simmons Female College in the Fenway, near Worthington St. The building will be 238′ x 238′ x 115′, ground measurement, three and four stories high, of granite, limestone and brick, with terra-cotta cornice. A special electric system will be installed and an indirect and direct system of heating. Contract has been awarded to Arthur C. Whitney, builder.

Buffalo, N. Y. — Walter S. Baldwin and Henry Greenwall, well-known theatrical men, have gone into partnership and will erect a theatre in this city on Main St. It will cost $80,000, and will be modern, handsome and well equipped.

Columbus, O. — The contract for the Thomas Block, 41′ x 100′, just south of the Bull property, will be let soon. It will be completed by January 1. The cost of the structure will be $50,000.

The new school-building to be erected by the Board of Education will cost about $50,000. It is expected to have the building completed in time for the opening of school one year from this fall.

Denton, Tex. — Charles Page, Jr., of Austin, has been appointed supervising architect of the new building which is to be erected at the North Texas Normal School. The building will cost $40,000.

Denver, Col. — Frank S. Snell, the architect, and Harry K. Brown, of the J. F. Brown Investment Co., have acquired property on Capitol Ave., and ground will be broken at once for the erection of thirty residences. Architect Snell, who has finished the drawings of the new residences, estimates that their erection, including the improvement of the ground, will cost approximately $150,000. They will be in the Colonial style of architecture and, although different in design, will form a harmonious whole.

Edwin Lewin is planning the construction of a three-story office, flat and store building on the property he recently purchased at 15th and Tremont Sts. The present buildings will be taken down and the new structure will cost about $100,000.

Emeryville, Cal. — The plans for the Santa Fé depot are completed and ground will be broken very soon for its erection. The building is to be of pressed brick and stone, and will cost $35,000.

BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

Hartford, Conn. — Ground has been broken for the addition to the Hartford government building, the contract for which was awarded to Ambrose B. Stannard, of New York. The contract includes everything but the heating plant and elevators, and amounts to $192,330.

Helena, Mont. — The Board of the Montana Club have received the preliminary sketches from Architect Gilbert, of St. Paul, for the new club-building. The building and furnishings will cost $100,000.

Los Angeles, Cal. — A three-story brick, plaster and cement hotel is being erected for the Southern California Hotel Co., at Alvarado and 6th Sts. The estimated cost of the building will be $50,000. John C. Austin is the architect.

Louisville, Ky. — Arthur E. Mueller, the real-estate agent, is negotiating for a ninety-nine year lease on a fifty-foot lot on 4th Ave., between Green and Walnut Sts, for the erection of a fifteen-story office-building.

Madisonville, Ky. — Mundo & McGraw of Henderson, have received the contract for the erection of the new school-building for this city, to be completed by the first of November. Cost, about $25,000.

Memphis, Tenn. — Plans for the building of a commodious Union passenger station have not been abandoned and the reopening of preliminary negotiations with that end in view will probably take

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

place as soon as the interested railroads complete more important undertakings of a general character.

Montreal, Que.—The Building Inspector has issued a permit to the Bank of Ottawa to construct a branch bank on the corner of Dollard and St. James Sts. The cost of the structure will be $150,000.

New York, N. Y.—The Coburn-Gahren Construction Co. has filed plans through Architects Neville & Bagge for a nine-story apartment house to be erected on Central Park West, near 65th St. The structure will stand on a plot 30′ x 109′, and will cost $200,000.

Plans have been filed with the Building Bureau for a new ten story private school-building of brick and limestone to be occupied by the Finch School and to be built at 61 and 63 E. 77th St. for James W. Finch as owner. It is to cost $125,000.

Northampton, Mass.—The Home Culture Clubs will erect a fine new building upon the Whitcomb estate, which the clubs recently acquired. The building will front in Gothic St., will be built either of brick or stone, and will cost not less than $30,000. This building is made possible by Andrew Carnegie's gift of $50,000 to the clubs. This sum was offered by Mr. Carnegie upon the condition that enough gifts be obtained elsewhere to give the clubs a yearly income of $5,000 for at least five years. This having been accomplished, the Carnegie gift is assured and the Board of Managers is in a position to make plans to enlarge the scope of the clubs' work.

Norwich, Conn.—The contract for the new fire station on Chestnut St. has been awarded to the lowest bidder, Peck, McWilliams & Co., at $22,408, and the firm has sublet the brick contract to Cruthers & Lillibridge. Work on the new building will be begun immediately.

Oklahoma City, Okla.—Charles A. Fellows, of Topeka, was awarded the contract to build a passenger depot, freight depot and freight office for the Santa Fe. The total amount of the contract is $70,000. It will be of Newkirk stone, with Spanish tile roof, 165 feet long and 45 feet wide.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Philadelphia, Pa.—Ninety-six dwelling-houses will be erected on both sides of Graylock St., between Kingsessing and Greenway Aves., for McDougal & Co., by Builder James Kane. The houses will be two stories high, 14′ x 35′ 8″ and 16′ x 51′, and will cost about $200,000 total. They will be constructed of brick and stone and have slag roof, hot air heat, tile and marble work and the latest appliances in all lines.

John R. Wiggins & Co. are about to start work on improvements which are to be made to the Medico-Chirurgical Hospital, on Cherry St., between 17th and 18th Sts. The work will cost about $150,000 and plans are by Architect James T. Windrim.

Pittsburgh, Pa.—The contract for the construction of the new Westmoreland County Court-house has been awarded once more, this time to William Miller & Sons of this city, subject to the approval of the Westmoreland County courts. This is the second or third time that a contract for the improvement has been let, and in every instance heretofore controversies have arisen and new bids have been asked. The building is to cost about $900,000 under the present contract.

C. M. Bartberger is receiving bids on the $100,000 granite and brick banking-house to be erected at 333 Fourth Ave. for the Industrial National Bank. The building will cover the entire lot, 30′ x 120′, and will be of the one-story type.

T. A. and E. R. Mellon have given H. S. White, of New Kensington, the job of finishing eight $15,000 residences on Northumberland and Wightman Sts., Squirrel Hill. The houses were started over a year ago, and are all under roof.

Pittsfield, Mass.—At a meeting of the special committee from the City Finance Committee and the School Board it was voted to recommend the sum of $50,000 for the erection of a new building at Orchard St. A special committee was appointed to look over the site for the new structure and also to determine where the present structure could be moved so that it could be used for school purposes while the new one is being put up.

Plans are now being prepared by an architect for

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

a large addition to the Berkshire Street Railway car-house on Beaver St., and about $10,000 will be expended on the contract.

Rockland, Me.—The plans of McLean & Wright, of Boston, have been accepted for the new Carnegie Soldiers' Memorial Library. The new building will be erected at the corner of Union and Belmont Sts. It will be of Gothic architecture, and of one-story with a dome in the centre, about 46 feet high. It will be almost entirely of brick, and will have terra-cotta trimmings. Cost, $18,000.

San Diego, Cal.—A $200,000 tourist hotel will be erected by Homer H. Peters at Ivy and Hawthorne Sts. It will be four stories high, and contain 200 rooms.

Schuyler, Neb.—The County Commissioners have decided to make a large addition to the court-house for office purposes and are now advertising for bids. The addition will be of brick, the old part being of the same material. The steel has arrived for the new jail in the rear of the court-house, and it is expected that the cells will soon be finished.

Sioux City, Ia.—Palmer & Co. will make an addition of two stories to their four-story warehouse, at a cost of $12,000.

Armour & Co. expect to start to lay the brick for their $2,000,000 plant here within a few days.

Spokane, Wash.—Albert Held, architect, has plans for a three-story business block, 53′ x 100′, with stores below and flats above. Cost, $30,000. Mrs. Edith L. Stebbins, owner.

Springfield, O.—Anthony Poss has been awarded the contract to rebuild that portion of the Y. M. C. A. building which was destroyed by fire.

St. John, N. B.—Architect Brodie has submitted plans to the commissioners of the General Public Hospital for improvements and additions to the institution, to cost, it is said, $20,000.

St. Paul, Minn.—The Masonic bodies are preparing to erect their temple on 4th and Market Sts. The architects' plans call for a building to cost about $100,000.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

E. J. Daly has secured the general contract to erect the new building at St. Thomas College, Merriam Park. Hermann Kretz & Co., architects. Cost, $35,000.

The St. Bernard Church Society contemplates erecting a new church next year on Geranium and Albemarle Sts. Cost, $80,000.

A six-story building, to cost $100,000, will be erected at Wabasha St. and College Ave. by the street railway company this year. The new building will be used as a general office-building and also for a power sub-station. It is expected that the building will be ready for occupancy next spring.

Sydney, N. S.—The town council have decided to proceed with the erection of the Carnegie Library building. The plans have been selected and the building will cost $15,000, the amount of Carnegie's gift.

Tecumseh, Neb.—The Tecumseh School Board has adopted the plans of Architect R. W. Grant, of Beatrice, for the proposed new high-school building.

Texarkana, Ark.—This city is to have a new $25,000 brick school building.

Turners Falls, Mass.—The Turners Falls Co. will make contracts as soon as possible for the enlargement of the canal. This improvement will cost $150,000. The changes will involve the taking down of the carpenter shop, the removal and rebuilding of the saw-mill, the demolition of the boiler-house and the building of sheds for a freight depot, the raising of the old reclaimer building, the installation of a battery of eight boilers, and the extension of the steel bridge that carries the steam-pipes over the canal.

Valdosta, Ga.—The County Commissioners will erect a new court-house to cost $60,000.

Waco, Tex.—The Board of Trustees for the city schools are soon to let the contract for four new school-buildings to be erected in different parts of the city. The buildings will cost from $10,000 to $20,000, and it is the hope of the Board to have them ready in time for the opening of the next term of the schools. Additions are to be made to a number of the school-buildings besides.

The County Commissioners will soon let the contract for a new jail for this county. The building is to cost $30,000 and work will begin on it at once.

The directors of the Masonic Widows' and Orphans' Home have accepted plans for the Masonic Temple here, the estimated cost of which is $140,000. Bids will be opened July 31.

The Texas Christian University will erect a new building to cost $40,000.

Wahoo, Neb.—The County Commissioners have called a special election of the legal voters of Saunders County to be held Thursday, August 13, 1903, for the purpose of voting bonds in the sum of $85,000 to be used in the erection of a new court-house.

Wilmington, Del.—Arthur L. Nicholson, of Philadelphia, has been commissioned to prepare plans for a handsome fireproof office-building for the DuPont Powder Co. It is to be a twelve-story structure, and will cost $600,000.

Worcester, Mass.—The T. H. Buckley Car Mfg. Co. has been organized, with a stock of $250,000, for the purpose of erecting a factory for the manufacture of steam and electric cars, snow-plows, etc. Work on the buildings will begin at once. The new plant will give employment to 300 hands.

ALTERATIONS AND ADDITIONS.

Chicago, Ill.—*Cortland Ave., Nos.* 127-139, three-st'y addition to school, 25′ x 50′; $70 000; o., Board of Education, *Tribune* Building; a., W. B. Mundie, *Tribune* Building; b., Marquardt & Brunke.

APARTMENT-HOUSES.

Chicago, Ill.—*Jackson Boulevard*, nr. Market St., ten st'y bk. & st. apart., steam; $250,000; o., R. & T. J. McNeill and Mrs. Crudup; a., Holabird & Roche, Monadnock Block.

New York, N. Y.—*Ninety-ninth St.*, nr. Madison Ave., six-st'y bk. flat with stores, 50′ x 87′ 11″; $50,000; o., Lashowitz & Cohen, 14 W. 118th St.; a., G. F. Pelham, 503 Fifth Ave.

Sixth St., nr. Avenue C, six-st'y bk. flat with store, 42′ x 87′ 8″; $55,000; o., S. Rosenberg, 38 Rivington St.; a., A. E. Badt, 1 Union Sq.

Ninety-eighth St., nr. Madison Ave., six-st'y bk. flat with stores, 50′ x 87′ 11″; $50,000; o., Lashowitz & Cohen; a., G. F. Pelham.

Hester and Forsyth Sts., six-st'y bk. flat with stores, 50′ 1″ x 100′ 8″; $60 000; o., H. Meyer, 12 Lispenard St.; a., G. F. Pelham.

EDUCATIONAL.

New York, N. Y.—*E. Seventy-seventh St., Nos.* 61-63, ten story bk. school, 37′ 9″ x 92′ 2″; $125,000; o., J. W. Finch, premises; a., C. A. Rich, 35 Nassau St.

St. Paul, Minn.—*Sixth and Sumen Sts.*, two-st'y bk. & st. school-house, 44′ x 84′; $25,000; o., Sacred Heart Parish; a., T. G. Holyoke.

HOSPITALS.

Chicago, Ill.—*Wood and Harrison Sts.*, four-st'y bk. hospital, 43′ x 152′, gravel roof, fan system; $75 000; o., Cook County; a., R. B. Watson, Plymouth Building.

HOTELS.

Chicago, Ill.—*Dearborn Ave., Nos.* 421-431, eleven-st'y hotel, 120′ x 132′; $500,000; o., W. L. Bush, Chicago Ave. and Clark St.; a., J. E. O. Pridmore, Champlain Building.

HOUSES.

Chicago, Ill.—*Washington Park Pl., Nos.* 4920 22, two & three-st'y dwell., 23′ x 56′ & 26′ x 64′; $25,000; o., A. Dubach, 4915 Vincennes Ave.; a., H. L. Newhouse, 4630 Prairie Ave.; b., Harper Brothers, 92 La Salle St.

Douglas Boulevard, No. 791, two-st'y dwell., 25′ x 59′; $10,000; o., N. Fuelgraff; a., George L. Pfeiffer, 1168 W. 12th St.; b., H. Balz, 828 S. Homan Ave.

BUILDING INTELLIGENCE.

(Houses Continued.)

Kenmore Ave., No. 2397, two st'y dwell., 33′ x 41′; $5,000; o. & a., Niels Buck, 123 La Salle St.; b., Fred Strobehn, 1923 N. Robey St.

Minneapolis, Minn.—*Humboldt Ave., No.* 1716, two-st'y fr. dwell., 28′ x 45′, furnace; $5,000; o., Herbert Pearce; a., A. L. Dorr.

LIBRARIES.

Sterling, Ill.—One st'y bk. & st. library building, 64′ x 69′, slate roof; $20,000; a., E. S. Hall, 153 La Salle St., Chicago.

PROPOSALS.

MASONWORK, HEATING, ETC.

[At Hardwick, Mass.]

Sealed proposals will be received **until August 8** by the Town of Hardwick, Mass., for the mason and carpenter work for the heating and for the plumbing for a frame school-house. Separate proposals for the three above items should be mailed to F. A Hitchcock, Gilbertville, Mass. Plans and specifications may be seen at the office of E. C. & G. C. Gardner, architects, Springfield, Mass., or with F. A. Hitchcock, Gilbertville, Mass. DR. M. H. DAVIS, Chairman of Building Committee. 1440

SCHOOL-BUILDING.

[At Beaumont, Tex.]

Sealed proposals will be received by the undersigned **until August 11, 1903**, for the erection and completion of the three-story brick school-building, according to plans and specifications now on file with the city secretary at Beaumont, Tex., and at the office of Glenn Allen, architect, Provident Building, Waco, Tex. (Signed) THOMAS LANGHAM, Mayor, Beaumont, Tex. 1440

ROADWORK.

[At Fort Strong, Mass.]

Depot Quartermaster's Office, 170 Summer St., Boston, Mass. Sealed proposals will be received at this office **until August 6, 1903**, for grading and constructing roads and walks at Fort Strong, Long Island, Boston Harbor, Mass. Proposals and information furnished on application. Plans and specifications can be seen at this office. A. M. PALMER, depot quartermaster. 1440

PIPE.

[At New York, N. Y.]

Army Building, Whitehall St., New York. Sealed proposals will be received here **until August 10, 1903**, for furnishing and delivering in New York Harbor 900 tons of cast-iron pipe and 12,000 feet of galvanized-iron pipe. D. D. WHEELER, A. Q. M. G., U. S. A., depot Q. M. 1440

HOSPITAL.

[At Fort Slocum, N. Y.]

Fort Slocum, N. Y. Sealed proposals for constructing additions to post hospital here will be received **until August 10, 1903**. Information on application. M. R. HILGARD, Q. M. 1440

PROPOSALS.

CEMENT, SAND, ETC. [At Fort Greble, R. I.]

U. S. Engineer Office, Newport, R. I. Sealed proposals will be received here **until August 10, 1903**, for furnishing and delivering at Fort Greble, R. I., American Portland cement, broken stone and sand. Information furnished on application. CASSIUS E. GILLETTE, Capt., Engrs. 1440

HOUSES. [At Merrill, Pa.]

U. S. Engineer Office, Pittsburgh, Pa. Sealed proposals for building two lockkeeper's houses, except foundations, at Dam No. 6, Ohio River, near Merrill, Pa., will be received here **until August 14, 1903**. Information furnished on application at this office or at U S. Engineer Office, Beaver, Pa. WM. L. SIBERT, Capt., Engrs. 1441

PAVING. [At New York, N. Y.]

Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, D. C., **until August 15, 1903**, for furnishing and laying 1,275 square yards, more or less, of wooden block paving at the navy yard, New York. Plan and specifications can be seen at the bureau, or will be furnished by the commandant of the navy yard named. MORDECAI T. ENDICOTT, chief of bureau. 1441

WALKS. [At Fort Leavenworth, Kan.]

Office Constructing Quartermaster, Fort Leavenworth, Kan. Sealed proposals will be received here **until August 14, 1903**, for the construction of granolithic walks and curbing at Fort Leavenworth, Kan. Full information and blank forms of proposal furnished on application to this office. MAJOR D. E. McCARTHY, Quartermaster. 1441

Treasury Department, Office of the Supervising Architect, Washington, D. C., July 27, 1903 Sealed proposals will be received at this office until 3 o'clock P. M. on the 18th day of August, 1903, and then opened, for the installation of a conduit and electric wiring system for the U. S. Post-office at Newport, Vermont, 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. 1441

Treasury Department, Office of the Supervising Architect, Washington, D. C., July 22, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 11th day of August, 1903, and then opened for the installation of an electric passenger elevator in the U. S. Post-office and Court-house at Hartford, Conn., in accordance with the drawing and specification, copies of which may be obtained at this office at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1441

FIRE-HYDRANTS. [At Washington, D. C.]

Office of the Commissioners, D. C., Washington. Sealed proposals will be received at this office **until August 20** instead of **August 8, 1903**, as previously advertised, for furnishing three hundred high-pressure fire-hydrants. Information may be received at this office. H. B. F. MACFARLAND, H. L. WEST, JOHN BIDDLE, Commissioners of the District of Columbia. 1441

REMODELLING JAIL. [At Camden, N. J.]

Sealed proposals for remodelling the temporary jail and office buildings on Federal St., Camden, N. J., will be received **until the 12th day of August, 1903**. Plans and specifications can be seen at the County Collector's office between 9 A. M. and 3 P. M. Bids to be endorsed proposals for remodelling jail, and to be addressed to William Anderson, Chairman of Court-house Committee. WILLIAM ANDERSON, Chairman of Court-house Committee. 1440

PROPOSALS.

HOTEL. [At Monessen, Pa.]

Bids for a $30,000 brick and stone hotel building for J. H. Threscher will be received **until August 25.** J. A. Lohmen, architect. 1441

BUILDING. [At Kingston, N. Y.]

Sealed proposals are invited and will be received by the Building Committee of the Industrial Home at a meeting of the committee to be held at the Industrial Home, in the City of Kingston, N. Y., on **August 10, 1903**, for the construction of a building on the lot owned by the Industrial Home, situated on Highland Ave. and Chester St., Kingston, N. Y., according to plans and specifications made by Pickering & Walker, architects, 1133 Broadway, New York. The plans and specifications may be seen on application to F. J. R Clarke, at the National Ulster County Bank, Kingston, N. Y. Proposals are to be sent to Miss M. I. Forsyth, president of the Industrial Home, at the residence of Augustus H. Bruyn, in said city. By order of the Building Committee. 1440

Treasury Department, Office of the Supervising Architect, Washington, D. C., July 20, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 26th day of August, 1903, and then opened, for the construction (except heating apparatus, electric wiring and conduit) of the extension of the U. S. Custom-house and Post-office at Nashville, Tennessee, in accordance with drawings and specification, copies of which may be had at this office or at the office of the Custodian at Nashville, Tennessee, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1441

PROPOSALS.

Treasury Department, Office of the Supervising Architect, Washington, D. C., July 16, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 19th day of August, 1903, and then opened for the low pressure steam heating apparatus, complete in place for the U. S. Court-house, Post-office and Custom-house at Newport, Vermont, in accordance with drawings and specification, copies of which may be had at this office or at the office of the Superintendent at Newport, Vermont, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1440

Treasury Department, Office of the Supervising Architect, Washington, D. C., July 16, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 20th day of August, 1903, and then opened, for the construction (including plumbing, heating apparatus, electric wiring, conduits and freight lift) of the extension of the U. S. Post-office at Bridgeport, Connecticut, in accordance with drawings and specification, copies of which may be had at this office or at the office of the Custodian at Bridgeport, Connecticut, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1440

Treasury Department, Office of the Supervising Architect, Washington, D. C., July 14th, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 5th day of August, 1903, and then opened for new vaults (except vault doors), Cash-room, Office of the U. S. Treasurer, and work incidental thereto, in the U. S. Treasury Department Building, Washington, D. C., in accordance with drawings and specification, copies of which may be had on application at this office at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1440

PROPOSALS.

DORMITORY, WATER AND SEWER SYSTEMS. [At Tulalip School, Wash.]

Department of the Interior, Office of Indian Affairs, Washington, D. C. Sealed proposals addressed to the Commissioner of Indian Affairs, Washington, D. C., will be received at the Indian Office **until August 27, 1903**, for furnishing the necessary materials and labor required to construct dormitory and water and sewer systems at Tulalip School, Wash., in strict accordance with the plans, specifications and instructions to bidders. For further information apply to C. M. Buchanan, superintendent, Tulalip, Wash. W. A. JONES, Commissioner. 1441

NAVAL SUPPLIES. [At Portsmouth, N. H.; Boston, Mass.; New York; League Island, Pa.; Washington, D. C., and Norfolk, Va.]

Proposals will be received at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., **until August 25, 1903**, to furnish at the navy yards, etc., Portsmouth, N. H.; Boston, Mass.; New York; League Island, Pa.; Washington, D. C., and Norfolk, Va., a quantity of machine tools, steam kettles, chemicals, overcoat cloth, woollen socks, motors, windlass and locomotive crane. H. T. B. HARRIS, Paym. Gen., U. S. N. 1441

BUILDING. [At Little Rock, Ark.]

Bids are wanted by the Board of Public Works **until August 12** for the construction of a building for the State Capitol. 1440

BUILDINGS. [At Hot Springs, S. D.]

Sealed proposals addressed to Moses Harris, General Treasurer National Home for D. V. S., in care of Thomas R. Kimball, architect, 503 McCague Building, Omaha, Neb., will be received at the above address, **until 12 o'clock M., August 4, 1903**, and then opened, for furnishing materials, labor, etc., for the construction of the main group of buildings at the Battle Mountain Sanitarium, at Hot Springs, S. D. Plans may be seen, and copies of instructions and specifications together with blank proposals had upon application to the architect, Thomas R. Kimball, 503 McCague Building, Omaha, Neb.; to the Builders' and Traders' Exchange, 138 Washington St., Chicago, Ill.; to John F. Daggett, Secretary, Denver Building Contractors' Council, 203 *Times* Building, Denver, Col; to the Builders' Exchange, St. Paul, Minn.; to E. S. Kelley, Banker, Hot Springs, S. D.; and to the office of the National Home for D. V. S., 346 Broadway, New York, N. Y. Address all inquiries regarding drawings and specifications to the architect as above. 1440

The date for the opening of proposals for the construction of the Battle Mountain Sanitarium, at Hot Springs, S. D., as heretofore advertised, is hereby changed from July 28, 1903, to August 4, 1903, at same time and place. MOSES HARRIS, General Treasurer, N. H. D. V. S. 1440

NEW ENGLAND MATERIAL-MEN AND CONTRACTORS.

BLUE PRINTING.

B. L. MAKEPEACE,
345 Washington St., Boston, Mass.

CHAS. E. MOSS,
Rapid Printing Papers.
38 Broad St., Boston.

PARKS & JEEVES,
34 Merchants Row, Boston, Mass.

BUILDINGS TORN DOWN.

A. A. ELSTON & CO.,
166 Devonshire St., Boston, Mass.

CONTRACTORS & BUILDERS.

McKAY & WOOLNER,
19 Harvard Place, Boston, Mass.

WILLIAM L. RUTAN,
1016 Tremont Bldg., Boston.

DOORS, WINDOWS, ETC.

E. A. CARLISLE, POPE & CO.,
2 Sudbury St., Boston, Mass.

ELECTRICAL CONTRACTORS.

ERICKSON ELECTRIC EQUIPMENT CO.,
280 Devonshire St., Boston.

FIRE-ESCAPES.

STANDARD FIRE-ESCAPE & MFG CO.,
120 Milk St., Boston, Mass.

FLAG POLES.

BOSTON FLAG POLE CO.,
169 Broadway Exten., Rm. 2.
Tel. 112.2. So. Boston, Mass.

MARBLE DEALERS.

COLUMBIAN MARBLE QUARRYING CO.,
(Branch Office.)
186 Devonshire St., Boston, Mass.

MASONS AND BUILDERS.

MORRILL & WHITON CONSTRUCTION CO.,
35 Federal St., Boston, Mass.

MEMORIAL WINDOWS

HARRY ELDREDGE GOODHUE,
23 Church St., Cambridge, Mass.

MODELLING AND ORNAMENTAL PLASTER.

SLEEP, ELLIOT & KING CO.,
351 Cambridge St., Boston.

ORNAMENTAL PLASTERING.

HERBERT FOWLE,
43 Bristol St., Boston, Mass.

PHOTOGRAPHIC SUPPLIES.

ROBEY-FRENCH CO.,
34 Bromfield St., Boston, Mass.
Cameras.

PHOTOGRAPHY.

LEON E. DADMUN,
169 Tremont St., Boston, Mass.

E. PERCY OLIVE,
44 Washington St., Boston.
Tel. 1333-3 Richmond.

N. L. STEBBINS,
132 Boylston St., Boston, Mass.

PLASTERERS.

GALLAGHER & MUNRO CO.,
166 Devonshire St., Boston, Mass.

PORTABLE OVENS.

H. A. JOHNSON & CO.,
224 State St., Boston, Mass.

ROOFING DUCK.

C. H. BATCHELDER & CO.,
234 State St.,
Boston, Mass.

SASH CORD.

SILVER LAKE CO.,
78 Chauncy St., Boston.

SEAM-FACE GRANITE.

GILBRETH SEAM-FACE GRANITE CO.,
Park Row Building, New York.
176 Federal St., Boston.

STABLE FIXTURES.

BROAD GAUGE IRON STALL & VANE WORKS,
53 Elm St., Boston, Mass.

STAINED GLASS.

REDDING, BAIRD & CO.,
83 Franklin St., Boston, Mass.

STONE CARVING AND MODELLING.

HUGH CAIRNS,
48A Sudbury Street, Boston.

TELEPHONES.

S. H. COUCH CO.,
156 Pearl St., Boston, Mass.
(Send for Circular A.)

WATERPROOF CELLARS.

FRANK B. GILBRETH,
Park Row Bldg., New York.
176 Federal St., Boston.

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.]