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THE New York Public Library, the competition for which excited so much interest in the profession, will not be built at present, Mayor Van Wyck having decided that the financial condition of the city does not now warrant the expenditure of the money that the building will cost. It is, of course, altogether probable that the matter will be taken up later, and the building carried to completion; and, meanwhile, the architects, mindful of the fate which has overtaken members of the profession who have hitherto trusted too blindly in municipal consistency, have been wise enough, with, of course, the approval of the Trustees of the Library, and the representatives of the city, to contract that their fees shall be paid them by the city, even if the municipal authorities "should fail or neglect in due time to award contracts or to provide for the construction and completion of said building." What is "due time" might, of course, have to be decided by a referee, or a jury; but it is hard to see how, under this contract, payment as agreed could altogether be withheld; and we commend the example of Messrs. Carrère & Hastings, in having such provision made, to all architects who deal with public bodies.

THE Pennsylvania Capitol matter does not take on a more attractive appearance as time passes by. *City and State*, a Philadelphia periodical with a mind of its own, points out that the contract for the building provides that "the architect shall have the power to make any changes in the construction and additions and deviations from the plans and specifications he may think desirable or necessary during the progress of the work, without in any respect varying this agreement or impairing its force; and in the event of any such addition or deviation from the plans or specifications, such further time shall be allowed for the completion of the work as the architect shall decide, and such sums of money shall be added to, or subtracted from, the amount of the contract price as such work may be fairly worth." It is not surprising that *City and State* asks, in view of this extraordinary stipulation, "What cannot be accomplished in the direction of an indefinite prolongation of the work, or addition to its cost?" It is hardly necessary to say, in answer, that such a provision simply lays the keys of the State Treasury at the architect's feet, while, for the definite provision of the statute, that the building shall be completed and ready for use November 15 next, it substitutes the good pleasure of the architect as to the time when, if ever, it shall be available. Of course, we do not attribute to the architect any disposition to abuse the power thus vested in

him, and it is quite probable that he is a better custodian of it than any one else would be; but this reflection does not diminish our amazement that the representatives of the State should have been willing to divest themselves in such a way of all control over the matter entrusted to them.

THE maximum height to which buildings may be lawfully carried in Chicago has just been reduced from one hundred and fifty-five feet, the former limit, to one hundred and thirty feet. This will, under ordinary circumstances, give room for ten stories, in place of the twelve stories which could be put into one hundred and fifty-five feet. The present limit in Boston is one hundred and twenty-five feet, which admits ten rather low stories. Recently, a bill was introduced into the State Legislature for reducing the limit to one hundred feet, by a general law, applying to the whole State of Massachusetts; but it failed, fortunately, to meet the approval of the committee to which it was referred, and it is probable that nothing more will be heard of it. While, of course, it is commendable to keep guard over the health of the public, and to restrict the height of buildings in places where such restriction will promote the public welfare, without too much injury to private interests, a wholesale limitation of the height of buildings to one hundred feet, simply as a round number, would be a most injudicious measure. As one hundred and twenty-five feet will only with difficulty admit ten stories, one hundred feet would allow only seven, which would occupy, in ordinary mercantile buildings and hotels, about ninety-two feet, leaving a waste-space of eight feet, too low for an additional story, and unnecessary for roof-space. To compel the owners of property on and near State Street to limit their buildings to seven stories, while their neighbors have ten stories or more to let, would be to reduce the value of their land by at least one-fourth, in most cases without reason, for the most valuable land in Boston is that which is bounded by wide streets, where injurious shading of the streets or neighboring buildings is not to be apprehended; and the State Senate Committee was wise in making short work of a proposition so unrestricted.

IT is proposed to build a new bridge between Cambridge and Boston, and the discussion of the matter has brought up some interesting questions. The City Engineer of Cambridge has had the good sense to urge that the bridge should be built of stone, which is, beyond question, the only proper material for a structure of the sort. To build of stone, as a good engineer would build, is to assure for the bridge, in all probability, a life of at least a thousand years, and perhaps more, for some of the Roman viaducts have been in constant use for nearly two thousand years, and are still serviceable; while to build of iron, although cheaper at the outset, is to insure the demolition and rebuilding of the structure in fifty or sixty years, with the suspension of traffic over it while the process is going on. Already, Cambridge is one of the larger cities of the United States, having a population of about ninety thousand souls; while Somerville, Newton, Waltham and Medford, which lie just beyond, contain about a hundred thousand more. All these towns are soon to be closely connected with Boston by the elevated railway, and the existing bridges, already crowded, will be totally inadequate to accommodate the traffic. The building of a bridge is a slow operation, and, by the time that the new one is finished, it will be needed.

AS to the question of paying for the bridge, a controversy has arisen. Strictly, bridges of this sort are county matters, and Cambridge belongs to Middlesex County, which comprises a large number of farming and manufacturing towns, extending as far as the Merrimac River. Naturally, the people of Lowell, and Wakefield, and Billerica have no particular interest in the question of facilitating the movement of people between Boston and Cambridge, and, as they do not like the idea of being taxed to pay for the bridges, they protest before the Legislature against having it built; while the people of Boston and Cambridge, on the other hand, do not like to see their plans interfered with by the people of the rural districts, many miles away; and it is becoming obvious that the county control of matters so purely local as bridges has great inconveniences. Of course, the idea of our ancestors was that roads, being important means of communication between towns, should

be cared for by a large group of towns, organized into a county; and a bridge, being, generally, a part of a road, falls under the same rule; but in a great capital, such as is constituted by Boston and its suburbs, the conditions are totally different from those which prevail in rural districts, and the logical method of carrying out public improvements which concern two neighboring municipalities is to place them in charge of metropolitan commissions, suspending the functions of the county authorities in regard to such matters, just as they are already suspended, by statute, in many individual cities, the mayor and aldermen performing certain of the duties of county commissioners in those cities.

MR. R. P. WAIT, a well-known architect of Boston, died a few days ago, at the age of fifty-three. Mr. Wait was, until failing health obliged him, a year or so ago, to retire from active practice, a member of the firm of Wait & Cutter, and, with his partner, practised extensively in New England and elsewhere. The new City Hall, at Richmond, Va., was built from their plans, as were also the Middlesex County Probate Court Building, and the Registry of Deeds, in Cambridge, Mass.; the Court-House at Dedham; armories in Boston, Springfield, Fall River and Lawrence, and several school-houses.

ONE of the greatest, as well as the most beloved and respected, of French architects, M. Léon Ginain, has just died from a violent attack of pneumonia, at the age of seventy-four. M. Ginain's name has for many years been very familiar to American architects, through his connection with the School of Fine-Arts in Paris, as well as by his works, the most noted of which, the Library of the École de Médecine, in the Boulevard Saint-Germain, is one of the most beautiful buildings in Europe. The grave and delicate simplicity which gives to this building a singular charm was characteristic of Ginain's work, and was fully appreciated by his countrymen. He had long been a member of the Institute of France, and a Professor at the School of Fine-Arts, as well as the director of a noted atelier; and important public commissions, almost without number, were entrusted to him.

EVERY one who enjoys the scientific investigation of mysteries should try to get hold of a copy of the January number of the *Proceedings* of the Engineers' Club of Philadelphia, containing an account of Mr. E. A. Scott's examination of the Keely discoveries. It seems that Mr. Keely, who is now more than seventy years old, has never been able to make anybody understand the principles on which his great inventions are based; and the stockholders in the company which has maintained him in comparative affluence for twenty-five or thirty years are beginning to fear that he may die before his secret has been imparted to a successor, and that their investment will, in consequence, perish with him. Hence Mrs. Bloomfield Moore, who is now, except Mr. Keely, the largest stockholder in the company, obtained Mr. Keely's consent to the employment of experts to witness his experiments, hear his explanation of them, and, if possible, understand them. Mr. Scott was one of these experts, and made several visits to the Keely laboratory, with Mrs. Moore and others; and his paper, which is illustrated by photographs and sketches, gives a brief account of such portion of his observations as would be likely to interest his engineer friends. It seems that for the more extraordinary manifestations which could be secured from the "Apergy," or mysterious force which Mr. Keely exclusively controls, he was obliged to trust to Mr. Keely's own description. For example, when the "vibrodyne" was revolving in sympathy with what Mr. Keely said was a molecular "subdivision" of forty-two thousand eight hundred per second, he explained that this was a "disintegrating vibration," and that he could disintegrate quartz into dust with it; but he did not offer to powder any quartz; and Mr. Scott was rather surprised to notice that the machine, which is supported on a heavy cast-iron bed-plate, bolted to the floor with large iron rods, and braced from the side-wall, could be stopped, when at full speed, by grasping it with one hand, or prevented from starting by the pressure of a finger.

IF Mr. Keely was obliged to leave the quartz-crushing experiment to the imagination of the spectators, it was not so with phenomena requiring less complicated instruments, and he exhibited a "sensitized bar," a thick steel rod, about eight inches long, which had been "vitalized." The consequence of

vitalization was that when one end of the bar was rapped on the floor it gave out a musical note of a certain pitch, which persisted for more than a minute; while, by rapping the other end, it produced a note of higher pitch, not quite so persistent. The bar had a small hole at each end, and it was possible to blow through it, but not to see through it, and there was also a transverse hole near one end. Mr. Keely explained that the sonorous quality of the bar was due to the vitalization, which "produces a molecular oscillation of three times the diameter of the molecule . . . giving a molecular swing that brings out an oscillation that produces a chord with three different notes." Mr. Scott, who had formed another theory, asked to have the bar weighed. The weight was found to be a little more than three pounds; but Mr. Keely explained that the sensitizing, or vitalizing, process consisted in treating the metal with hydrogen in an oven, which would sometimes reduce its weight to nearly half the normal; and Mrs. Moore told those present that the bar had created a sensation in the scientific world in Europe, and that there was a standing offer of ten thousand dollars for the production of a similar bar. Without learning the particulars of this offer, Mr. Scott, later, with Mr. Burk, president of the Spring Garden Institute, constructed without difficulty an apparatus, consisting of a steel bar, bored out sufficiently to admit the insertion of two ordinary tuning-forks of different pitches, and then capped, and the caps smoothly turned off, in which the "molecules" showed just the same "swing" as in the "vitalized" bar, and the notes persisted in the same way, while the specific gravity of the apparatus corresponded quite closely with that produced in Mr. Keely's bar by the treatment "with hydrogen in an oven." Another experiment which Mr. Scott had the opportunity of witnessing was that of "levitation," in which two objects, a brass ball and a disk, immersed in water, in a glass jar tightly capped, were made to ascend and descend in conformity with sounds produced on a mouth-organ, acting through a complicated apparatus called a "Sympathetic Negative Transmitter," connected with the jar by what appeared to be a platinum wire. This experiment would suggest to most people with any knowledge of physics the suspicion that the movement was produced by varying the pressure of air in the jar over the water, in the same way that a child's hollow rubber ball, properly weighted, or the hollow toys sold for the purpose, can be made to rise or fall in a jar of water by pressing upon, or releasing, a piece of sheet rubber stretched over the mouth of the jar; and Mr. Scott, who noticed that the platinum "wire" when bent tended to assume polygonal forms rather than curves, managed to examine the end of it, when disconnected, and discovered that it was really a tube, which could easily be made to convey compressed air from the large brass ball which constituted the main feature of the "Sympathetic Negative Transmitter" to the upper portion of the jar. The same sort of "wire" was used in several other experiments, and, while Mr. Scott says that it is quite possible that similar results can be obtained in different ways, it is certainly curious that, by means of a slender tube of the same sort, Mr. Burk was able, using a small air-pump as a transmitter, to produce the same effect of "levitation" on objects immersed in water that Mr. Keely secured by means of "sympathetic vibrations." In fact, although Mr. Keely described experiments, such as lifting heavy machinery into the air by "creating a vibratory condition" around them, and making wheels turn in space, which, as he said, were easily performed, he did not offer to repeat them in the presence of his visitors, and the latter, during several visits, saw no phenomena which could not be reproduced by the aid of forces already familiar to science.

THE National Academy of Design, in New York, has voted to open its exhibitions to the public on Sundays, and to make admission free on that day. The experience of the Metropolitan Museum of Art has shown that the Sunday opening of a picture-gallery is a public benefit, affording to persons of refined taste, who cannot leave their work in the daytime except on Sundays, an opportunity to refine and elevate their minds still further; and the Academy exhibitions, which include, as a rule, the new work of the season, have an interest of their own which will appeal particularly to the great and increasing class of men and women who live by what may be called semi-artistic pursuits, such as jewelry work, embroidering and designing of all sorts, and will welcome the opportunity to keep themselves acquainted with the current condition of the higher arts.

THE HOTEL WALDORF-ASTORIA, NEW YORK.



Monument to St. John Nepomuk, Breslau, Prussia. From *Architektonische Rundschau*.

TO describe the Hotel Waldorf-Astoria so as to give to the reader who has not visited it an adequate idea of its size, complexity, beauty and ugliness, without profuse illustrations, must, of course, be a hopeless task. Such a building, like many other things in life, must be seen to be appreciated. As regards the architectural and decorative beauty of the two buildings, both externally and internally, it may, at least, be said that the older building (the "Waldorf") is the better. The "Waldorf" may not be a masterpiece, in fact is not, nor does it contain, so to speak, any room or bit of surpassing beauty, but it is, at least, livable-in, which is a good deal more than one can say of the "Astoria." One is not obliged to quarrel with the "Waldorf," but I am afraid, in my own case, life in the "Astoria" would be all quarrel. To the student who values properly the quality of repose a wink will be just as good as a nod, and who in this country, and in our time, who has given the matter any consideration, will not say that of all things we require most to cultivate it is repose, not exactly sleep, but restfulness. As regards the exterior of the "Astoria," it is difficult to say just what is the matter, but the Thirty-fourth-Street elevation is particularly unsatisfactory. It consists of an immense wall-space penetrated by small and meagrely ornamented openings, an extremely heroic colonnade of Ionic columns and a tremendously vigorous and architectural sky-line of cupolas, dormers, roof, etc. There appears to be no reason why such a combination should be unsatisfactory, but in execution the parts evidently lack the proper proportions and locations to make them combine into a perfect or even passable whole.

The Fifth-Avenue and Thirty-third-Street elevations are undoubtedly better in design. Internally, the color, which I think, almost without exception, is bad, in a large measure is accountable for the unsatisfactory result. Had the color been well chosen, I think it would in a large measure have redeemed the architectural form and arrangement from its place among things ordinary and extraordinary. In making these comments I fully bear in mind the immense disadvantage that an architect labors under in carrying out a building upon what are generally understood as "up-to-date" business-lines, which means that, from the inception of the scheme to its completion, he is so rushed along at high speed that he has little or no time to study anything except how to get the building completed, and has, in short, to put into one or two years labor what, under more favored conditions, might reasonably take the study of half a lifetime. This he cannot avoid.

The Hotel Waldorf-Astoria is situated on Fifth Avenue, New York. It is surrounded by streets on all sides. On Fifth Avenue and Astor Court it has a frontage of about 200 feet and on each of the side-streets, Thirty-third and Thirty-fourth Streets, a depth of 350 feet, giving an area of 70,000 square feet. The height of the "Astoria," from the floor of the sub-basement, which is 33 feet below the street-level, to the roof-line, is about 270 feet, or about 240 feet above the street-level. It is 16 stories in height, including the stories in the roof. The "Waldorf," which has 11 stories in all above the ground—9 stories in the walls and 2 in the roof—is, consequently, about 50 feet lower.

The total cubic contents of the building is, roughly speaking, about 16,000,000 of cubic feet. The cost of the two buildings, exclusive of the furnishing but including the land, was about fifteen million dollars.

In studying the plan of the combined Hotel Waldorf-Astoria it must be borne in mind that the "Hotel Waldorf" was planned without any intention of adding to it what is now its larger, if not better, half. Consequently it would be unfair to criticise the plan as a whole ignoring this fact, for undoubtedly the plan is not as straightforward and frank as one would like it to be, and as probably it would have been if designed to suit the comprehensive scheme it ultimately developed into. On the exterior the two and three lower stories in the respective buildings are of red sandstone, while the balance of the work to the roof-line is red brick and terra-cotta. The building rests on solid rock and, in construction, is of what we understand as the steel-frame fireproof type. The building, from an engineering point-of-view, exhibits no extraordinary skill except that general skill in high building of which we feel justly proud, even although it may only be, so to speak, a nine-days'-wonder.

The Waldorf Restaurant is one of the most satisfactory of the public rooms. The style is Empire. The columns shown on plan are of dark-green marble, and the pilasters that come opposite them are of mahogany, with rich ormolu work in the panels. The caps and bases of both columns and pilasters are gilded. This treatment, as may be noted, occupies most of the wall-space. The ceiling is divided by heavy beams running from column to column, and between these the flat space is divided into oval and other shaped panels with light mouldings. The color-scheme is in tints of pale-green and cream-color, and the panels of the ceiling are frescoed with figures in pinkish-red on a blue sky or field. The walls suggest principally mahogany and gold, with a little color in the comparatively small wall-spaces left between openings. On the other hand, the Astoria Restaurant is so unsatisfactory that the least said about it the better. It is not to be copied—at least we hope not.

The palm-gardens hold the second place in fitness and beauty. They rise to a height of two and three stories respectively and are roofed over with domes of tinted glass; balconies at the various floor-levels open on to these courts and overlook them. The materials used in these palm-gardens are cream-colored brick and terra-cotta. The color and detail are good, the style Italian Renaissance. They are used as cafés and, in their clothing of green palms and white-covered tables dotted around, make quite an attractive feature in this great hotel. The main corridors, foyer, etc., of the "Astoria" are treated with pilasters and columns of Sienna marble and a color-scheme on the walls and ceilings of salmon-pink, with cream-color and pale-green. The capitals of the columns and pilasters are of solid brass gilded or lacquered, yet the whole thing does not appeal to our senses as at all satisfactory: the color is not good. The assembly-room is a pretty room in pearl-gray tints and pleasing detail, so also the salon "Marie Antoinette"; but when one comes to the café, bar-room, etc., one has really to pronounce them bad. They are said to be in the style of the German Renaissance; but although I do not admire much the German Renaissance, I think it is a little hard on that country.

Talking of color reminds us that we ought not to be too hard on bad color. Color, so to speak, never got west of Italy, and hardly that. In the Turkish room we are all right; one can at a glance see the difference: a few Turkish rugs and hangings, selected anyhow, quite at random, are incomparably more delightful than all the most studied effects in color of more Western artists. I suppose, to the Turk, however, our idea of a Turkish room is very crude, and no doubt it is. We are learning form just now and I suppose in a few thousand years color will follow—I mean good color. On the first floor the two most important rooms are the Astor Gallery (two stories in height, in the style of Louis Seize, or about that period) and the ball-room, three stories in height, with two tiers of boxes. The ball-room is a very fine room, from the practical standpoint of seeing and hearing, and has a capacity to seat 700 at banquets and 1,200 at concerts. The style is Louis Quatorze, and the color-scheme is in tints of ivory-gray, cream-color, etc. One gets a little tired of this repetition of grays and creams and is somewhat relieved to find in the "Colonial Room" some really strong plain red in contrast with white woodwork.

The plans given elsewhere illustrate the general arrangement of the bedroom stories, which are substantially alike. There are 1,300 bedrooms in all and 178 bath-rooms. On the top floor of all is the roof-garden, enclosed on all sides by glass, with glass roof over. It is furnished with rattan chairs and lounges in pale-green and pink, hung across with some gauzy fabric to temper the sun's rays and is in every respect cool, restful and inviting. In the basement is done all the heavy and most practical part of providing and storing the thousand-and-one requisites necessary in a first-class hotel, little space being occupied by the 1,200 employés, who, with a few exceptions, sleep off the premises. In the sub-basement is located the machinery. The boilers aggregate about 3,000 horse-power, the electric generators taking 2,200 horse-power of the total energy. The elevators are run by this force, as are also 15,000 incandescent lamps, branching from 7,500 outlets. The system of heating and ventilating the public rooms is that of forced draught by means of powerful blowers situated in the sub-basement that force the fresh air between steam-coils, where it becomes moderately heated before entering the ducts that lead it to the various rooms. This heat is further augmented by direct radiators placed behind screens in the

recesses of the windows and elsewhere. The bedrooms and corridors are heated by direct radiation only.

It is impossible to do full justice to so large and complicated a building within so limited a description, but it and the plans and illustrations published herewith may enable the designer or student of such problems to find something to interest and help him in similar problems, whether large or small. The building, from a purely architectural standpoint, may not be by any means above criticism; at the same time, one has to remember that there are many points to be considered as elements of success besides those which appeal directly to the eye, and perhaps, from the managers' standpoint, the architect, Mr. Hardenbergh, has much more to be congratulated upon than we of somewhat aesthetic disposition would be inclined to give him credit for, in having brought to so "practically" successful a termination so gigantic an undertaking. W. G. MITCHELL.

THE THIRTEENTH EXHIBITION OF THE ARCHITECTURAL LEAGUE.—I.



THE impression made upon visitors by the thirteenth exhibition of the League seems to be, in many cases, one of disappointment. One hears whispered comments that it is "not as good as usual"; and it is certainly less interesting and representative than some of those which have done honor to the League and the profession. It is very likely that the decline in catholicity noticeable in the present exhibition is due to the increasing number of local

exhibitions in all parts of the country, which, naturally, enlist the interest of those concerned in them, to the disadvantage of New York; and still more of the monotony and inequality of the exhibits may probably be attributed to the general prostration of business, which has kept architects almost idle for several years. Nevertheless, the hanging-committee has done well with the material available, and, by securing sets of important competition drawings, has furnished a series of alcoves of great interest, without casting smaller works into the shade.

Entering the beautiful galleries, as usual, through the room devoted to decorative painting, we find, perhaps, an unusual number of cartoons for stained-glass, which it is difficult to make extremely interesting; some photographs and other black-and-white works; and a beautiful set of cartoons for panels and lunettes in the ball-room of the new Astoria Hotel, by Mr. Will H. Low, which occupy, and well deserve, the place of honor in the room. All these works, with others, are brought together in the cleverest manner, by the ingenious device of covering the wall, to a uniform height of about seven feet above the chair-rail, with gilt paper, which serves as a background and frame to everything hung upon it, and gives the effect of a soft, rich band around the room, in which the photographs, and magazine-covers, and mosaics and stained-glass cartoons are but incidents, incapable, by any dissonance among themselves, of interfering with the general effect. So decorated, the room is capable of containing, without any unpleasant result, several plaster models, one of which shows the accepted design for the Soldiers' Monument at Jersey City. This, the sculptured part of which is the work of Mr. "Philippe Martigny," as the catalogue informs us, presents one of the best pedestals that we have seen for a long time. The figure is in animated action, and it is, naturally, difficult to design a pedestal which will harmonize with such action, without losing dignity by breaking up its outlines. In the present case, the architects have solved the problem very happily by keeping their profiles simple, and decorating each of the long sides of the pedestal with three pairs of intertwined wreaths, in rather high relief, between which inverted torches in modified relief serve to separate the groups of inscriptions below; while a foliated torus, forming the upper member of the pedestal, completes the transition from the formality of the base to the flowing lines of the figure. This is the design, by the way, the selection of which by the jury is said to have raised a storm of indignation in Grand Army circles in Jersey City. The figure upon it represents a highly vigorous young female, armed with a sword of ample size; but it is well known that the veterans of the Grand Army permit no encroachment by the "new woman" on their rights, and an effort was made to throw aside the award, and substitute the usual representation of a lame infantryman standing at ease and gazing at vacancy, which may, so far as we know, be still in progress.

There are other competitive models for the Jersey City monument, as well as for other monuments; and, in fact, the display of models is larger, we think, than ever before, much to the advantage of the public. It is true that all the models are not entirely praiseworthy, and one, for a group to be put over the head of a door, the central, and highest, portion of which is formed by two figures, standing upright at a little distance apart, is a painful example of unfamiliarity with architectural composition; but some pieces, as, for instance, two figures, by Mr. J. Massey Rhind, for the Park Row Syndicate Building, are adapted to architectural surroundings with

a skill which is remarkable, even among American sculptors, who have of late made wonderful progress in this detail of their art. Besides the models for monuments and pieces of sculpture, two or three buildings are shown in the same way, among them being Mr. James Brown Lord's Appellate Court House in New York, a stately and well-studied composition, with an attic which appears rather too high in the model, but will undoubtedly assume its proper proportion when foreshortened in execution.

In the room with this fine model are shown several of those for the New York Soldiers' and Sailors' Monument, that of Messrs. Stoughton and Macmonnies certainly justifying the award of the jury which placed it first in the competition. Some of the other designs are, however, interesting. A model by Messrs. Dodge, Brite & Bacon, with Mr. Niehaus as sculptor, for the Jersey City Soldiers' Monument, shows an eccentricity hardly to be expected from such accomplished artists, in having a triangular plan. It is said that the only excuse that a whist-player can have for not returning his partner's lead of trumps is sudden illness, or not having any trumps to lead with; and, to our mind, the only excuse that an architect can offer for using a triangular plan is an attack of acute dementia, or the positive orders of his client. If any one can point out to us, in the whole world, an example of an attractive monument on such a plan, we should like to know where that example is to be found.

Leaving the models for the drawings, we find near the door of the Vanderbilt Gallery a remarkably clever church group, by architects not as yet much known to fame,—Messrs. Field & Medary, of Philadelphia. In this pretty composition the perennial problem of "marrying" a parish-house and rectory to a church is solved by putting the former under a single roof, with its ridge at the level of that of the church roof, and forming a sort of long transept, which is further connected with the church by a garden-wall, remotely suggesting a cloister enclosure. The windows and doors of the transept are nicely treated, so as to agree about as well in scale with those of the church as is ever possible, but the success of the design is mainly due to the management of the roof.

Near this Messrs. Cope & Stewardson have some details of their Institution for the Instruction of the Blind, which add to the promise of this interesting building given by the general drawings shown last year; and there is a novelty, in the shape of a pastel drawing of a building made at a rather small scale, which decidedly fails to indicate the value of the medium for such work. Mr. Hardenbergh has here a perspective view of his "Hotel Raleigh," an interesting design in a simple French style, showing the same clever use of little bathroom windows, for giving interest and scale, without breaking too much the solidity of the piers, which is found in the "Astoria" and the "Waldorf"; and Messrs. Lamb & Rich have their Washington Life Insurance Building, a good composition of seventeen stories, and some pretty drawings of houses in various parts of New Jersey. Mr. Cary's Buffalo General Hospital is shown in a large drawing, showing a portico, raised on a high basement, with a glass and iron "marquise" just beneath the columns of the portico. Mr. Shean, with Mr. Hardenbergh, shows some pretty and delicate sketches in color for various portions of the "Astoria Hotel"; and Mr. W. A. Potter sends some fine pen-and-ink drawings of his Church of the Divine Paternity, in a style too much neglected in this country, where color-effects, in the Beardsley manner, seem to be regarded, by a certain school of architects, as the proper thing. It is possible, of course, to give an attractive Beardsley treatment to a drawing of a building, as Messrs. Tracy & Magonigle have done in some sketches of country-houses; but in these cases the house is picturesque and well-composed, and the idea that a tawdry and commonplace design can be commended to the public by exhibiting it in silhouette against an Indian-yellow sky, diversified with flat clouds in Payne's gray, and with a foreground of olive-green wash, is a very mistaken one.

Designs for high buildings are generally interesting, and Mr. Charles I. Berg has a nicely-studied apartment-house, of eleven stories; but it is rather overpowered by a set of splendid colored perspective drawings, by Mr. E. Eldon Deane, for Mr. Kendall's Recreation Piers for the City of New York. The treatment of the various piers, four in number, with the buildings on them, is straightforward and interesting, and, shown with a distance of river scenery, and a foreground of sparkling water, they present as attractive a set of architectural perspective drawings as has ever been shown at the League exhibitions.

(To be continued.)

PROFIT OF THE PATENT OFFICE.—The report of the Commissioner of Patents covering the operations of the Patent Office during the calendar year of 1897 again shows a large surplus resulting from the business of that department. This is one of the branches of the Government which yields annually an income largely in excess of its expenditures; and the accumulation of the profits of the Patent Office now amount to close upon \$5,000,000, which has been turned into the general treasury for expenditure in other directions. And yet in spite of this excess of income over outgo it seems impossible to induce Congress to permit the expenditure of these profits in improving the organization of the Patent Office and in providing better facilities for the transaction of its business. The work of the Patent Office is of immense importance to the manufacturers of the United States, and their support should be given unhesitatingly to the measures designed to secure more liberal appropriations for the work of this department.—*American Trade.*

BOOKS AND PAPERS

THE burning, a month or so ago, of a large portion of Dover Castle, which, we believe, is the only fortification extant of the famous "cinque portes" of England, brings to mind the fact that we have too long neglected a couple of elaborate and costly volumes,¹ and for this neglect we must offer our apologies both to the publishers and the author. The fact is that the work in question, dealing with the castles of England, is, on the face of things, of a nature not to very greatly interest the architectural public in this country. Nevertheless, as it is nowadays somewhat difficult to take a day's journey in any direction without being able to see from the car-window the country-place of some millionaire, designed and erected after the fashion of an English manor-house, a German castle, or a French château, it is evident that the book in question is more likely to find a sale nowadays than it could have found a score of years ago.

The work is one of those agglomerations of miscellaneous matter which fall under the general classification which is proper to county histories, and yet it is very much more coherent, and more valuable, than any county history we ever saw. In the first place, it treats of a specific, although somewhat large, class of buildings of very great historical and archaeological value and interest, and, to a very considerable extent, a class that is nowadays of a certain value to the working architect as containing architectural information of a possible practical utility. The work is, however, of greatest value and interest because of its historical and archaeological character: it is full of curious and interesting historical information given in the guise of anecdotes, as well as more formal miscellaneous data and condensed citations of historical events connected with the history of the structures which are described. As to architectural description of these structures, there is practically very little. Ver- bally, there is almost none, and it is only occasionally that the author finds it desirable to give even a sketch-plan of the structure which he is considering. In place of the illustrations which would add architectural value to the work, the author has used, in substitution, a large number of illustrations, both half-tones and photogravures, which give purely pictorial representations of the structures as they exist to-day. The beauty of these illustrations and their great picturesque value make the two volumes extremely interesting for casual inspection, and it is impossible to turn over the leaves and light upon one of these castles, whether abandoned and in ruins, or still

architectural and archaeological proprieties, the abode of his ancestors. As to the character of the interesting historical information which can be discovered in these volumes, the following excerpt, which recounts one incident in the history of Upnor Castle, will give sufficient indication:

"The Fort Upnor stands on the left or north bank of the Medway, almost opposite to the dockyard of Chatham. It was built by Queen Elizabeth for the defence of the river, and consists of a long castellated oblong building in rear, three stories in height, having a high round tower at each end, and with the addition now of a casemated ravelin in front, at the river edge, where was a platform for guns defended by a stockade. It was long used as a powder magazine, with an establishment of a governor and other officers, and an officer's guard of soldiers in a barrack in rear. The entrance was through a square tower in rear of the west side, the governor's quarters being in the south tower.

"The only time in which its services were called on was in 1667, on the occasion of the Dutch invasions by De Ruyter, so dishonorable to England, the circumstances of which in connection with Upnor Castle it may be worth while to recall:

"After the Restoration the glories of the British Navy under Blake appear to have been forgotten; the moneys intended for the fleet and naval stores were otherwise appropriated, and when, in 1667, the States General determined to strike a vigorous blow on this country, the English fleet was laid up in ordinary, the dockyards were depleted, and the sailors mutinous from long-overdue wages. De Ruyter, with Van Gent and the best fleet officers, sailed in the spring with a powerful squadron to make a descent on the Thames and destroy all the ships of war he could find, and to burn the magazines and stores. Intimation of this being received, the Duke of York took measures for protecting the ships lying in the Medway, a fleet of sixteen line-of-battle ships, the finest in the navy, but only partially armed and rigged, and without crews. He caused an iron chain cable to be stretched across the Medway at Gillingham, which weighed 14 tons 6 cwt., and was supported with floats and strained taut by windlasses at either end. Two flank batteries were formed also to protect the chain, but were not armed in time.

"Behind the chain were moored two large ships, which had been taken from the Dutch during the Commonwealth, the 'Charles V,' and the 'Matthias,' to protect the barrier with their broadsides, while a number of ships were sunk in the channels to render these impassable. Rear-Admiral Sir Edward Spragge lay at Sheerness, at the mouth of the Medway, with a small squadron, but the fortifications here were neglected.

"On June 10th the Dutch came before Sheerness, and, after cannonading the fort there, landed and took the place at once, the garrison running away, and the 'Unity' frigate making off towards Chatham. Munitions of war were taken to the value of £8,000, and fire was set to the place. The Duke of Albemarle (General Monk) was then sent



Skipton Castle, Yorkshire.



Leeds Castle, Kent.



Caverswall Castle, Staffordshire.

kept in repair and in daily occupation, without turning to the text to discover why disaster has fallen upon the place, or who it is who has sufficient veneration for his family history to spend time and money in the very desirable effort of restoring, with due consideration for

to see to the defences of Chatham, but he found all in panic there, and could effect little beyond reinforcing Upnor Castle, and arming some batteries, besides sinking more ships to block the river, the principal one, the 'Santa Maria,' being, however, carelessly run ashore and so leaving the main channel open.

"On the 12th the enemy came on with a fair wind and tide, two men-of-war leading, and successfully passed all the intricacies of the channel, with a number of fire-ships in company. One of the Dutch captains, Van Braakel, reaching the 'Unity,' near the chain, at once

¹ "The Castles of England," their story and structure. By Sir James D. Mackenzie, Baronet of Seatwell and Tarbat. With forty plates, one hundred and fifty-eight text illustrations and seventy plans. Two vols. large 8vo. New York: The Macmillan Co. Price \$25.

boarded and carried her; then two of the fire-ships charged the chain, which gave way, and so allowed the whole fleet of some twenty-five ships to pass up. How this obstacle was passed was never quite ascertained: Pepys, who visited the place, says he found both ends fast; but it seems possible that the chain, being borne down by the weight of the first ship, some of the floats became detached, allowing it to sag, and the other vessels to pass over. Then one of the fire-ships grappled and set fire to the guardship, 'Matthias,' while two others did the same to the 'Charles V,' which burned all day and blew up at night. Meantime the fort at Gillingham and the battery at the north end of the chain may be assumed to have done what they could with their incomplete armament, but the Dutch account says they were abandoned at once.

"Worse followed. Moored a little above the chain, with only her lower masts in, and no more than thirty-two out of her 100 guns on board, lay the 'Royal Charles,' the finest ship in the navy. She had originally been named the 'Naseby,' but, having brought the King home, at the Restoration, had been rechristened. Orders had been given repeatedly that this magnificent ship should be taken to a safer berth, but the officials had neglected to do so, and now, with a couple of small boats, the Dutch captured her and carried her away, with the 'Unity,' to Holland. Then, after they had set fire to the 'Sancta Maria,' the state of the tide obliged the enemy to defer other proceedings till the next day. On our side the Duke of Albemarle did what he could during the night to raise new batteries, with the aid of volunteers, most of his men having deserted, as they could not get their wages.

"On the following morning (13th) the Dutch, sending on a squadron of six men-of-war to engage Upnor and the batteries, proceeded with five fire-ships to compass the destruction of the large ships they saw lying above Upnor, and at 2 p.m. their fleet engaged the batteries. The guns of these and of Upnor Castle on the other side returned a heavy fire of cannon and musketry, but the English record says that the enemy 'made no more account of Upnor's shooting than of a fly.' So, passing through the smoke, the fire-ships attacked the three ships lying close above the castle, namely, the 'Royal James,' 'Loyal London,' and 'Royal Oak,' all fine 80-gun ships, and set them on fire. Thus it happened that on this afternoon there were six British ships of war blazing fiercely in our own waters; in the words of Evelyn, 'as dreadful a spectacle as Englishmen ever saw, and a dishonour never to be wiped off.' Then, having successfully achieved their well-planned invasion, and inflicted a fearful indignity upon the Power so long in command on the sea, the Dutch at once retired from the scene of their triumph. They had burnt six of the best of our ships, and carried off two others and many prisoners, with the loss only of the fire-ships, and of some thirty men killed and wounded.

"In excavating for new dock basins at Chatham in the year 1876, there were discovered, below a deposit of fifteen feet of mud, the timbers of an old ship, in the bend of the river near the east entrance to St. Mary's creek. She was of foreign build; and twenty-one guns, some of Dutch make, were dug up around her. She had evidently been blown up, her after-part being missing, and all points to the fact that these were the remains of the 'Charles V,' which had been captured from the Dutch in 1665, and which formed, as has been told, one of the guards of the chain. Set on fire, she probably drifted on the tide to this spot, where she grounded and blew up during the night, settling down then on the spot where her timbers were thus discovered 209 years afterwards." (From Commander Crofton's Paper in the *Journal of the Royal United Service Institution*, 1885.)

The character of the illustrations embodied in the work may be discovered by referring to the illustrations here published at a reduced size, although the views chosen show not any of the many picturesque ruins that are to be found in every county of England, but merely a few which have, while retaining in some respects their castellar characteristics, been remodelled so as to become convenient modern houses. These subjects have been chosen not as belonging either to the classes our author uses as subdivision, "chief" and "minor," and still less to his class of "non-existent" castles: they are merely types of a large number of habitable castles, made habitable either through sheer length of purse or real veneration for the family history of the owners. As showing how great is the veneration in which Englishmen hold their historic castles we recall how, on our first visit to England, we made a trip to Tamworth Castle, near Lichfield, but no sooner came within sight of it than we turned on our heels and abandoned the visit, because it so little fulfilled our imaginings of what an English castle should be. Yet it is this very Tamworth Castle which was bought at auction last summer by the town authorities because of their veneration for it. Against the town-clerk who represented the town were pitted two other bidders—one said to represent one of those "rich Americans" who of late years have acquired not a few historic estates in Great Britain,—and whenever either of these bidders advanced the price the bystanders shouted out "Oh, let the Town have it!" and finally the Town did get it, for £3,000, and so it will still remain one of the "show places" which afford to Transatlantic tourists a glimpse of where, and perhaps how, feudal aristocracy lived.

THE DECLINE OF FRENCH ART-INDUSTRIES.

FRANCE, in the domain of art-industries, seemed for a long time to occupy an impregnable position. In vain was the rapid progress of German industry proclaimed. From the point-of-view of taste, French products were superior to those of all other nations. In 1851, at the close of the International Exhibition at London, this superiority was so manifest and so indisputable that the English deemed it necessary to establish in all directions schools of design, to bring together at great cost the best patterns and to

organize an artistic instruction, the tangible results of which have only been apparent in these later years.

The true rival of England at that epoch was France; Germany was not in question. Nevertheless, a few years only have been required to entirely modify this situation. While France remained stationary, while its art-industries continued to pursue antiquated methods, Germany was moving forward; its instruction was developing and its products succeeding in profitably competing with French articles, even on the soil of this latter rival.

Here is a great lesson for industrial nations. Such countries must strive to give an artistic stamp to their products. If they neglect this condition of success, everything foreshadows the loss of foreign markets, so essential to larger national development.

It was just said that the situation of France had been in later years deeply modified in so far as concerns its art-industries. This statement is not based on reports emanating from persons interested in depicting matters as worse than they are in reality, nor is it grounded upon any pre-existing opinion. Its corroboration is found in an official document compiled by M. Manus Vachon and recently published by the Bureau of Fine-Arts at Paris. It is an official report on the art-industries of France, and is a thorough study of the subject, having required of its author nearly two years' labor. The result is a mine of information.

Among the manufactures which for a long time constituted the chief industries of France were silks and ribbons. M. Vachon finds, in his report, that the artistic value of the silk textiles manufactured at Lyons has greatly fallen; further, that there is scarcely any more creative taste or originality in the designs. If this situation persists, there must inevitably be a decadence in this industry. In foreign markets better inspired competitors are not wanting to attract clients. At St. Etienne, the ribbon manufacturers are passing through one of the most severe crises, due in a great measure to foreign competition. In gun-making, for which St. Etienne was formerly so renowned, the production is decreasing year by year, and artistic iron manufactures exist only as a souvenir.

M. Vachon recalls the fact that at Marseilles the manufacture of jewelry twenty years ago counted more than a hundred workshops, employing 500 artists. At present, these shops number 60 and the workmen have decreased by 75 per cent. The Germans and Swiss are waging a bitter competition on the manufactures of Marseilles and are succeeding in winning away its market. The manufacture of artistic bronzes and the printing industry of this city have, however, so far sustained themselves.

Who has not admired the beautiful products of Limoges, the great centre of the porcelain industry? The output of ordinary articles has indeed increased; but would it be believed that even on the markets of France, and more especially in other countries, Germany leads in articles de luxe and fantasy ware? This, notwithstanding the fact that the French industry is very ancient; that the good taste of its artistic products seemed difficult to attain; and that their success appeared irrevocably assured. Within a few years the result has been decisive; French articles have been supplanted by their German rivals.

Furniture stuffs formerly constituted the prosperity of Cours. To-day this industry does not count more than 200 workmen. At Angers artistic carving on stone and wood employed 800 men in 1880; now there are only 300. The decadence is rapid, and there does not seem any means of stopping it.

At Roubaix the crisis is also quite as threatening. Its principal industries are the manufactures of clothing goods and furniture stuffs. The workmen employed in the factories number 50,000, and the annual production is estimated at \$100,000,000. This prosperity is seriously threatened by foreign competition, especially by Germans. Not only has German industry made enormous strides, but it has actually created original designs, which enter the Paris market in competition with the articles of Roubaix. A fully-developed and well-organized instruction in designing has brought these results. From Paris came the models, the types, and designs for textile fabrics. At the present moment German textiles are preferred by several commission houses on the very market of Paris, and this preference is based, in a great measure, upon the originality of design and upon the care given to the manufacture of various articles. The struggle, therefore, becomes daily more and more intense. What is needed at Roubaix, according to M. Vachon, is a more complete and better-developed instruction for the superintendents and higher employés of the factories. Skilful designers are especially wanted. Some time ago, it should be noted, a technical institute was founded, with a view of supplying these needs and forming a higher class of workmen equal to their task.

At Calais the manufacture of machine-made lace is diminishing year by year. In 1881 this industry had a production of \$22,000,000; in 1891 the total value was \$8,000,000. It increased slightly toward 1894, but since then its decadence has only been accentuated. The struggle against Germany and Switzerland is growing more and more painful. The decorative-art school is occasioning numerous complaints; it has very few pupils, and is, in fact, rendering little service. German patterns are being introduced everywhere and are threatening to reduce the production of Calais to a quarter of what it was a few years ago.

Such is only a very brief review of M. Vachon's book. From his investigations, it is clear that for all branches of industry a strong, well-organized, comprehensive course of technical instruction is

indispensable. Design exercises a preponderating influence in every art-industry. There was a time when the efforts of the manufacturer were limited to reproducing, more or less skilfully, ancient patterns. Competition has, however, become so intense that such a custom may now be considered as antiquated. Everywhere, originality and good taste in design are required. Products uniting these qualities have the chance of being sold, and that rapidly. French manufacturers who are not apt enough to comply with these modern exigencies of purchasers see their articles pushed aside and their production decline in startling proportions.

This lesson will be serviceable to American producers. If they wish to succeed they must not neglect the artistic side of their respective industries. Scarcely any branch of manufacture exists in which good taste and fine designs do not render its products more attractive and, consequently, more easily sold. The basis of success, however, must not be forgotten — technical education. The younger generations must be taught to improve on the work of their fathers, and thus be able to increase our hold on the markets of the world.

HENRY C. MORRIS, *United States Consul.*

Ghent, 1897.



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

CONCERT-HALL AND BALL-ROOM: HOTEL WALDORF-ASTORIA, NEW YORK, N. Y. MR. H. J. HARDENBERGH, ARCHITECT, NEW YORK, N. Y.

[Gelatine Print, issued with the International and Imperial Editions only.]

BEDROOM OF THE "ROYAL SUITE": HOTEL WALDORF-ASTORIA, NEW YORK, N. Y. MR. H. J. HARDENBERGH, ARCHITECT, NEW YORK, N. Y.

PLANS OF THE HOTEL WALDORF-ASTORIA.

For description see article elsewhere in this issue.

COMPETITIVE DESIGN FOR THE NATIONAL ACADEMY OF DESIGN, NEW YORK, N. Y. MR. H. J. HARDENBERGH, ARCHITECT, NEW YORK, N. Y.

DESIGN FOR A LYNCH GATE, SEAL HARBOR, ME. MISS BEATRIX JONES, LANDSCAPE ARCHITECT, NEW YORK, N. Y.

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

THE DUCHESS OF KENT'S MAUSOLEUM, FROGMORE, WINDSOR, ENG.

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This plate is copied from *Teknisk Tidskrift*.

BORDER DESIGNED BY VIOLETT-LE-DUC.

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[Additional Illustrations in the International Edition.]

DETAIL OF BALL-ROOM CEILING: HOTEL WALDORF-ASTORIA, NEW YORK, N. Y. MR. H. J. HARDENBERGH, ARCHITECT, NEW YORK, N. Y.

[Gelatine Print.]

FULHAM THEATRE, FULHAM, ENG. MR. W. G. R. SPRAGUE, ARCHITECT.

NATIONAL PROVINCIAL BANK OF ENGLAND, LONDON, ENG. MR. JOHN GIBSON, ARCHITECT.

STAIRCASE IN THE OFFICES OF THE NEWCASTLE AND GATESHEAD WATER COMPANY. MESSRS. BROWN & ROBINSON, ARCHITECTS.

SCHOOL-ROOM DECORATION. — Alexander H. Revell, of Chicago, has offered through the industrial-art department of the Central Art School, a prize of \$2,500 for a color-sketch which shall present the most practical suggestions for the decorating of a public school-room. — *Exchange*.



[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.]

PREDETERMINATION IN DESIGN.

March 22, 1898.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — I think it is no more than fair to ask Professor Hamlin how it is that he, for example, "predetermines definite patterns or representations" apart from the process of design?

I cannot think that by this phrase he means to suggest the direct appropriation of other people's design, and as I can see no resource beside this for the determination of the forms of design other than by the processes of design itself, I am at a loss to know what he means.

Certainly, if "definite patterns or representations" can be determined upon before the process of design begins, it is reasonable to inquire by what faculty of the mind that "predetermination" is achieved? By this theory implication is made that man "predetermined" the whole development of art, and consciously chose the path pursued in preference to other equally possible paths; or else, if "predetermination" as here used does not mean a conscious and responsible choice, but a decision forced on the agent by higher controlling powers, Professor Hamlin's discrimination between the design of animals and the design of man falls to the ground — what does he mean?

AN EARNEST INQUIRER.

NEW YORK, N. Y., March 23, 1898.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Your "Ernest Inquirer" has misread my letter in your issue of March 19. I have carefully reperused that letter, but I cannot find any statement that man "predetermines definite patterns apart from the processes of design," or "before the process of design begins." I cannot imagine how your inquirer could read such a proposition into my letter.

What I said was that "Decorative design is universally understood to mean the composition or arrangement of form or color into definite patterns or representations predetermined in the mind of the designer." Obviously and by ordinary grammatical construction the predetermination referred to precedes the composition or arrangement, and is a part of the operation of decorative design. It is nothing else than the conscious and personal choice of one form or color, or set of forms or colors, in preference to all others, and of a scheme or method for their combination and arrangement. It is a mental operation, of which the completed and executed design is the material realization. A bird adorns its nest with fire-flies or brilliant feathers, but it composes no ornamental designs therewith. It does not invent patterns. It does not develop styles. Its hap-hazard adornment of its nest with fire-flies and bright feathers does not conform to any definite pattern or representation consciously formed in the bird's mind before the execution of these adornments. Your "Ernest Inquirer" conjures up the theory which he attacks, and all the extraordinary conclusions he draws from it, out of nothing that appears in my communication.

Respectfully yours,

A. D. F. HAMLIN.

XYLOLITH.

PHENIXVILLE, PA., March 21, 1898.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — In reply to the inquiry of "Philo-Germanicus" in No. 1158 of the *American Architect*, I would state that that excellent building material, named "Xylolith," which he appears to refer to, is manufactured by one firm in Germany only, viz: Messrs. Otto Sening & Co., of Potschappel, near Dresden, Saxony, whence it may be procured in plates, or blocks, cut to any desired size, not as a powder in bags, as your correspondent seems to think. Xylolith is composed of sawdust and magnesia, mixed in liquid form, and subjected to a pressure of 400 atmospheres in big hydraulic presses. As the plates turned out by the press are of pretty large dimensions, they are afterwards sawed to the size required. Xylolith being of great hardness, and proof against fire and water, forms an excellent substitute for wood or stone, for flooring, roofing, and many other purposes, as it combines the advantages of both wood and stone. The foregoing is gleaned from reputable technical journals, the writer having no personal knowledge whatever of the article. The Imperial Testing Laboratory, of Charlottenburg, in 1888, made extensive tests of Xylolith, yielding highly favorable results. An article descriptive of the material, its manufacture and its uses, was published in No. 2740 of the *Leipzig Illustrirte Zeitung* of January 4, 1896. Yours truly,

F. G. LIPPERT.

NOTES AND CLIPPINGS

PARIS LANDMARKS DISAPPEARING.—Through the progress of the metropolitan improvements in Paris many ancient landmarks are about to disappear to make room for long lines of straight streets and high houses. The members of the Old Paris Society [Commission de vieux Paris] are consequently bestirring themselves to secure as many relics as possible, and preserve them in the Carnavalet Museum. Among the prisons that are to be demolished are the Mazas, the Grand Roquette (known to criminals as the "Antechamber of the Guillotine"), Sainte-Pelagie, and Saint-Lazare. It is proposed to collect all the locks, bolts, bars, and keys of these places, and to preserve the same in the Carnavalet Museum, in the Rue des Francs-Bourgeois, Hôtel de Ville district. In the same establishment is to be placed a gate or postern of the Bastille, which is now in the prison of Sainte-Pelagie. The prisons themselves will be photographed, and colored drawings are to be made of them before they disappear. The Old Paris Society will also probably succeed in buying the Hôtel de Sens, a curious specimen of architecture, dating from 1498, and situated not far from the Hôtel de Ville. State aid is, however, required for this purpose, and it is expected that it will be given, so as to insure the preservation of the building, which could be converted into a museum or library. The interior is not worth much from the archaeological point-of-view, as it has lost its fifteenth-century character, but the shell of the construction is intact. Another survival of the fifteenth century, namely, the Tour de Jean sans Peur, is also receiving attention. The tower is quadrangular in form, with pointed bays and machicolated battlements, and is a relic of the Hôtel de Bourgogne, constructed in the thirteenth century. It is near the modern Boulevard de Sebastopol. The associates of the society are likewise watching the progress of the excavations made in the bed or along the banks of the Seine during the preparations for the Exhibition of 1900. A flint hatchet and some bones have been found near the land bases of the Alexander III bridge. These with any other curiosities of old times hereafter found in the same locality will be placed on view in the Champ de Mars during the great exhibition, and will subsequently be transferred to the Carnavalet Museum. — *Pall Mall Gazette*.

ENGAGED COLUMNS.—The use of colonnades partially built into a wall, as we see exemplified in the banquetting-hall at Whitehall, is not uncommonly condemned as a departure from the dignity and real use of columns, and as something false or absurd. If tested by the standard of common-sense, there is no sufficient ground for such condemnation. Columns are points of support, and we may with equal correctness consider them in that light, whether insulated or engaged, for, as supports, they are equally valid in either case. We may regard the wall intervening between engaged columns as the means of enclosure, not of support—assisting the columns, it may be, in the support of the entablature, but not an essential and integral part of the fabric. The great Doric temple at Agrigento and the Erechtheum at Athens suffice to show that even in the best period of Greek art this practice was not held to be opposed to the canons of good taste. The critics who would condemn engaged columns have, of course, a wide field for the exercise of their censorship in the engaged pillars or wall-shafts of Medieval art, the use of which is an exactly analogous practice, inasmuch as they represent the points of support of the arches and vaulting which spring from the capitals. The truth is that there is perfect masonic propriety, whether in the wall-shafts of a cathedral or in the engaged pillars of a Greek temple. They represent an accumulation of power at the particular point of the wall on which the principal weight is charged; and not only have they constructive truth to justify them, but also great æsthetic value. These vertical lines of support convey to the mind the idea of the active and efficient support of any particular imposed weight far more satisfactorily than can be effected by presenting a plain unbroken wall of apparently uniform solidity and strength, and this idea is still more forcibly and distinctly produced on the mind when the vertical engaged shafts are of different color and material from that of the general surface of the wall. This practice, so prevalent both in Medieval and Classic art, gave rise to additional beauty and variety by the use of colored and polished marbles. — *The Architect*.

A TUNNEL AT GIBRALTAR.—A tunnel under the Strait of Gibraltar is proposed by M. Berlier, who lately drove the tunnel under the Seine for the sewage disposal of Paris. Aside from its assumed commercial use, M. Berlier tells the French people that it would be extremely valuable in connecting France with Algeria, in case of any trouble with England, which now controls the surface of the Strait, with its fortifications and powerful navy. Be this as it may, the engineering features of the plan may be noted as follows: The tunnel would begin on Spanish soil, at the Bay of Vaqueros, on the line of Cadiz; it would then cross straight to Tangier with a submarine tunnel 19.84 miles long, or with its tunnelled land approaches, 25.4 miles long; a twenty-five-mile railway would connect it with Ceuta on the Algerian side. At the narrowest part the Strait is only 8.7 miles wide; but the depth of water there is 1,968 feet, and the consequent grades would make a tunnel impracticable. At the site of the proposed crossing the depth of water is 1,312 feet, and, with the length proposed, he finds permissible grades, and thinks it would not be more difficult to construct than the Alpine tunnels; in fact, he estimates that it would cost about \$200 per linear foot, or \$24,600,000 in all. To connect it with the Algerian railway system 279 miles of railway would have to be built, at a further cost of about \$18,000,000. It does not appear whether M. Berlier has any knowledge of the character of the strata which would be pierced by the proposed tunnel; and we need hardly say that unless the tunnel could be kept in absolutely impervious rock all the way across the scheme would be as impracticable as Jules Verne's famous "Journey to the Moon." — *The Engineering News*.

VALUE OF KITCHEN WASTE.—The New Jersey Experiment Station has collected data regarding the value of the kitchen and table waste in a family consisting of one man, one woman, four boys and two girls, during three weeks. During this period there was collected about 96 pounds of material, of which about 70 pounds was vegetable matter. Taking the chemical analysis of this waste as the basis of calculation, it is estimated that there would be gathered from 20,000 people about 2,080 tons of garbage annually. By treating with suitable solvents and drying the residue there could be secured 388 1-2 tons of fertilizer, worth \$14.69 per ton, and over 81 tons of grease, which sells for an average of \$70 per ton wherever this system is in operation. By cremation there would result 83 1-2 tons of ashes, worth \$28.53 per ton. The total population of the cities and towns of New Jersey is approximately 918,722, and the garbage of this number of people would amount to 95,516 tons per year, from which could be manufactured 17,484 tons of tankage, worth \$262,180, and 3,726 tons of grease, worth \$260,800, a total of \$522,980. — *Philadelphia Record*.

NEW SCULPTURE FOR THE PANTHEON, PARIS.—Once a church, after having been built as a memorial to the country's great men, "*Aux grands hommes la Patrie reconnaissante*," and then again devoted to its original purpose, the Pantheon has until recently looked somewhat cold and bare. The defect is being gradually remedied. All round the walls are paintings of episodes of the National history, due to the brushes of the most eminent painters, commissioned by the State to decorate the building. Statuary is now to be added, and M. Antonin Mercié has just finished the rough model of a huge group of the generals of the Revolution, which is ordered for the building, and will be placed in Ste. Genevieve's Chapel. On the right are Marceau, Hoche and Dessaix, grouped together; a little in the background, on horseback, is Bonaparte, who points to an army on the march depicted in bas-relief, while beyond him is Carnot, "the Organizer of Victory." The whole is backed by a triumphal obelisk, from which is descending a winged Liberty, bearing laurel wreaths. Another group, to represent the orators of the restored monarchy, is being prepared by M. Dalou. — *London Post*.

AZTEC TURQUOISE MINES REDISCOVERED.—The finding in a remote part of San Bernardino County, California, briefly announced in the press despatches, of the mines whence, it is supposed, the Aztecs obtained their supply of turquoise, is regarded by Dr. Gustav Eisen, of the California Academy of Sciences, as the most important archaeological discovery made in the State. Dr. Eisen accompanied the exploring party and has written at length on the discovery. The mines, he says, cover miles of territory. The abandoned pits appear now as saucer-like depressions, but a few feet below the surface in those that were opened were found numerous stone hammers and other rude implements. In the neighboring cliffs are many caverns, now partly filled with sand blown in by the winds, but bearing evidences in the hieroglyphics cut in their walls, in the fire-blackened roofs, and in the pieces of rude pottery found under the sand, that they had been used as habitations. At one place there is a passageway cut through a cliff, that leads to a spring at least a mile away. The Aztec water sign can here be found on both sides of the cañon, indicating the way to the spring. The other hieroglyphics, which number tens of thousands and extend for twenty to thirty miles around the mines, are highly complicated, suggesting in some of their features the Aztec picture-writing, and in others resembling the hieroglyphics of the Mayas of Yucatan. The tools found in the pits are all made of very hard lava and basalt, and mostly of very fine workmanship. The stone hammers are of various sizes, from six to eight inches long, beautifully smooth and rounded, each with a wide central groove extending across three sides of the hammer. Besides these hammers were found also axes of various kinds of rock. These axes are of different sizes, from six inches square and upward. They taper towards the edges, and are furnished with a groove running all around the centre for the secure holding of the handle. One of these axes was of gigantic size, about three feet long, and so heavy that both hands were required to handle it. While some of the tools are yet in the best state of preservation and of fine workmanship, others are much chipped and battered or even broken up, showing that they have been in actual use. — *N. Y. Evening Post*.

A ROMAN BATH UNEARTHED IN ROME.—The present year will long be remembered by archaeologists in Rome, as it has brought many valuable and interesting "finds." But the most valuable, because the most perfect, is a Roman balineum, or domestic bathing-place, found a few days ago beneath the beautiful Church of SS. Giovanni e Paolo, standing not far from the Colosseum. In the fourth century no patrician's house was complete without its balineum, and the one now discovered probably belonged to a villa on the slope facing the eminence covered by the Palaces of the Cæsars. It consists of two rooms, communicating by several doors, the larger of the two being rectangular in shape, with a white cement ceiling in an excellent state of preservation. In the wall at the end of this room is a laconicum, a semi-circular opening under which is a bath of terra-cotta, which was used by the Romans for cold baths. The floor is in squares of inlaid black and white marble, and raised from the ground on small columns in order to allow of the circulation of hot air from the terra-cotta tubes that run between the columns. In a third room the furnaces for heating the air have been found, and in a fourth numerous amphora, basins, etc., as well as several vessels filled with burnt-out charcoal. It is many years since so perfect a discovery has been made, the baths at Pompeii and other places where they have been found having been seriously damaged by volcanic deposits or the passage of time. The Church of SS. Giovanni e Paolo, which has one of the most beautiful mosaic pavements in Rome, was built in the fourth century, on the site of the house occupied by St. John and St. Paul, who were martyred in the reign of Julian the Apostate, and it is thought that the saints were probably given hospitality by a patrician, the size of the bathing-place pointing to a house of considerable dimensions. — *London Morning Post*.



H. J. HARDENBERGH, ARCHITECT.

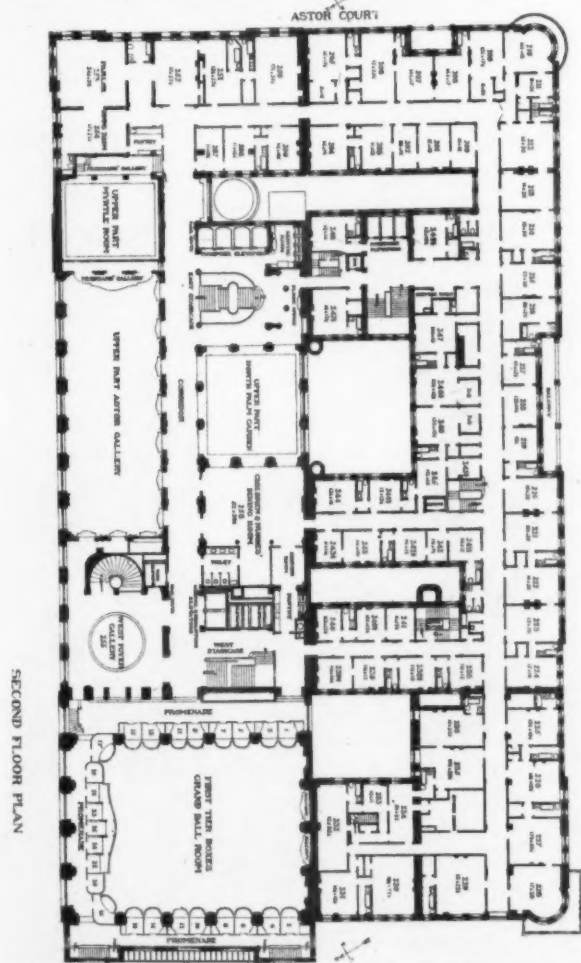
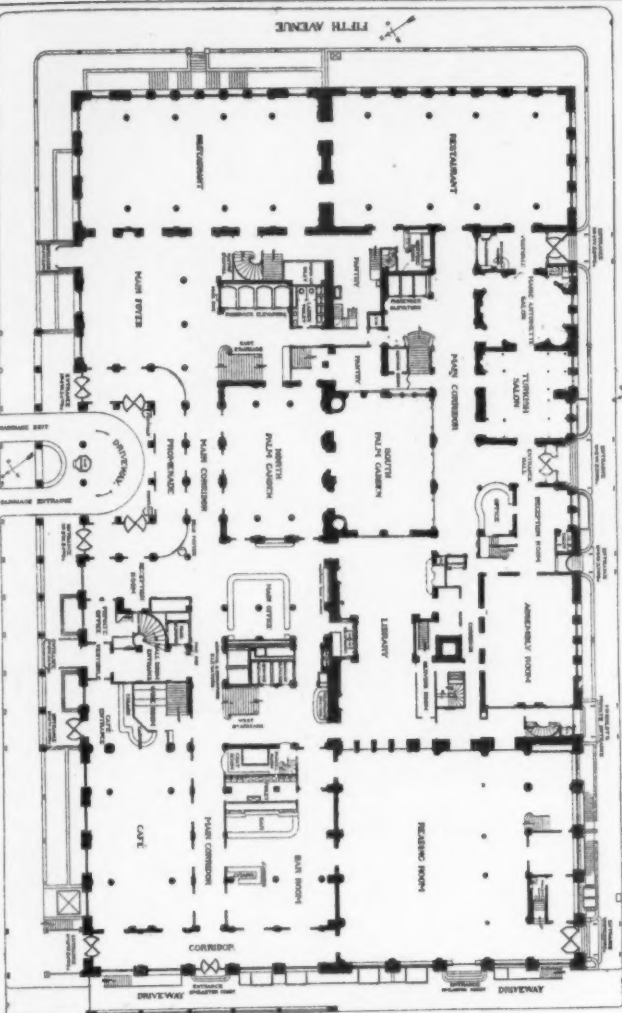
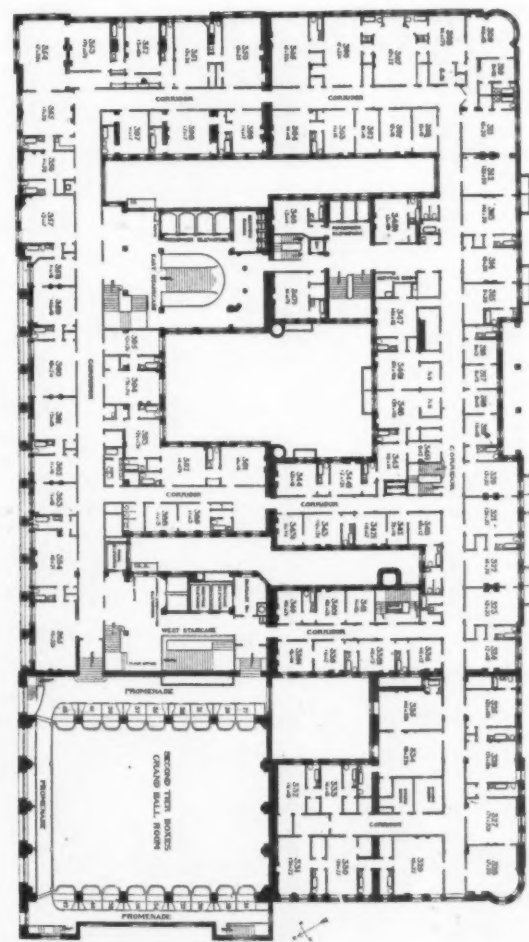
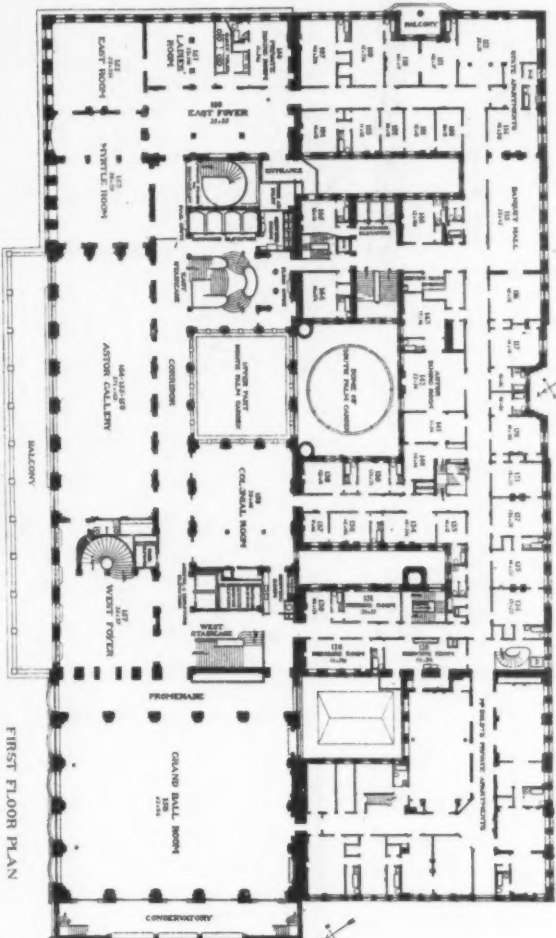
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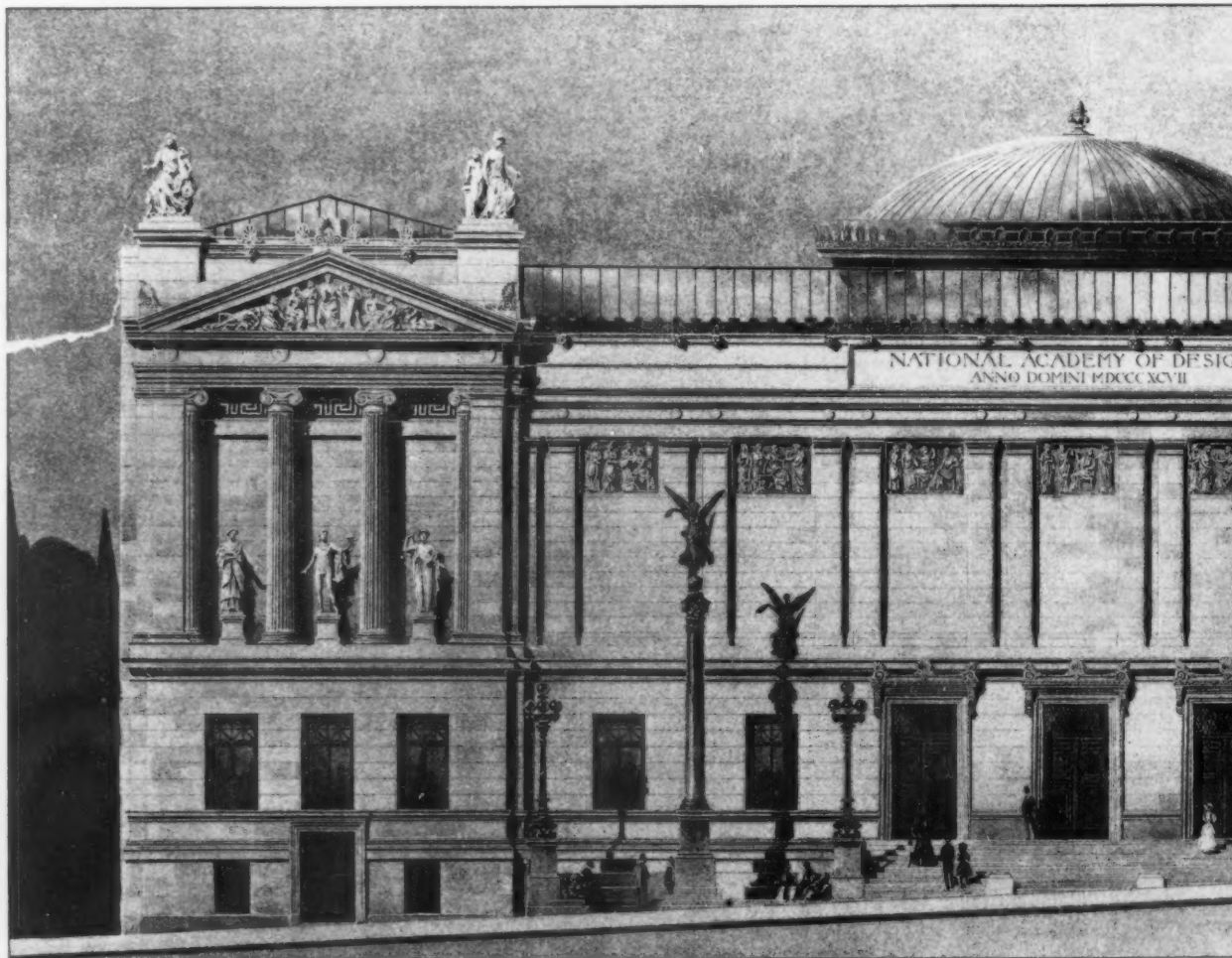
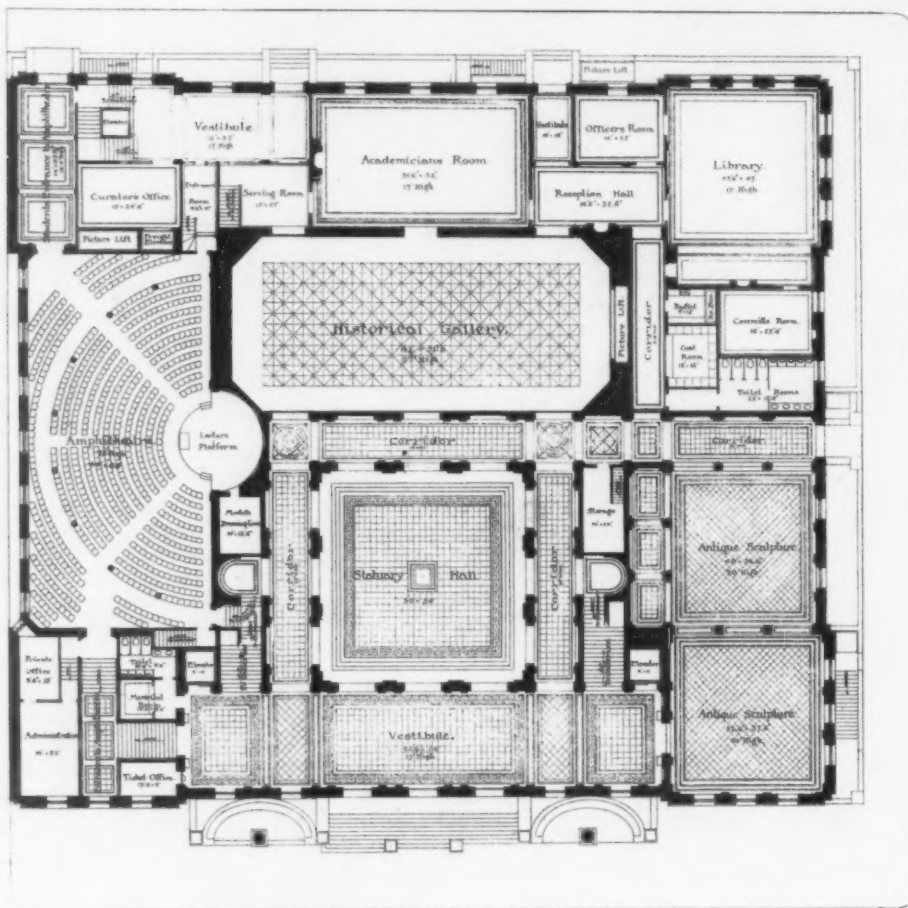
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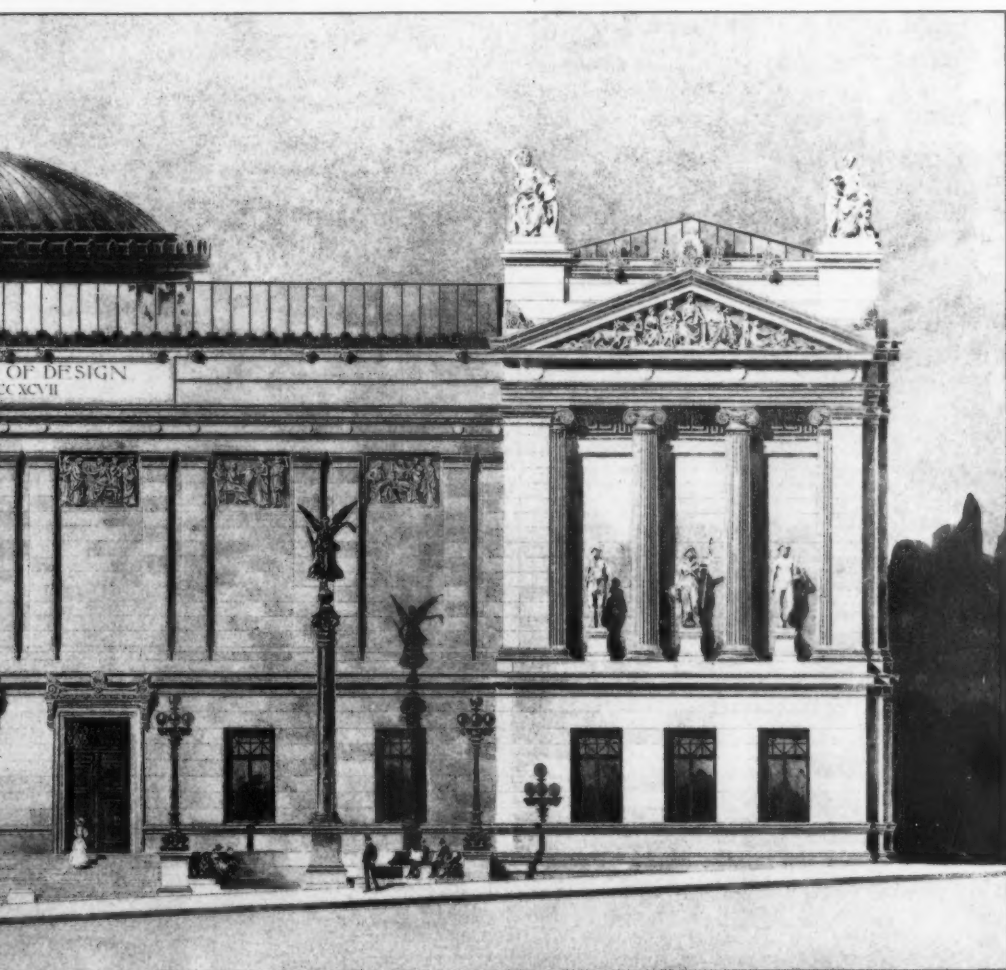
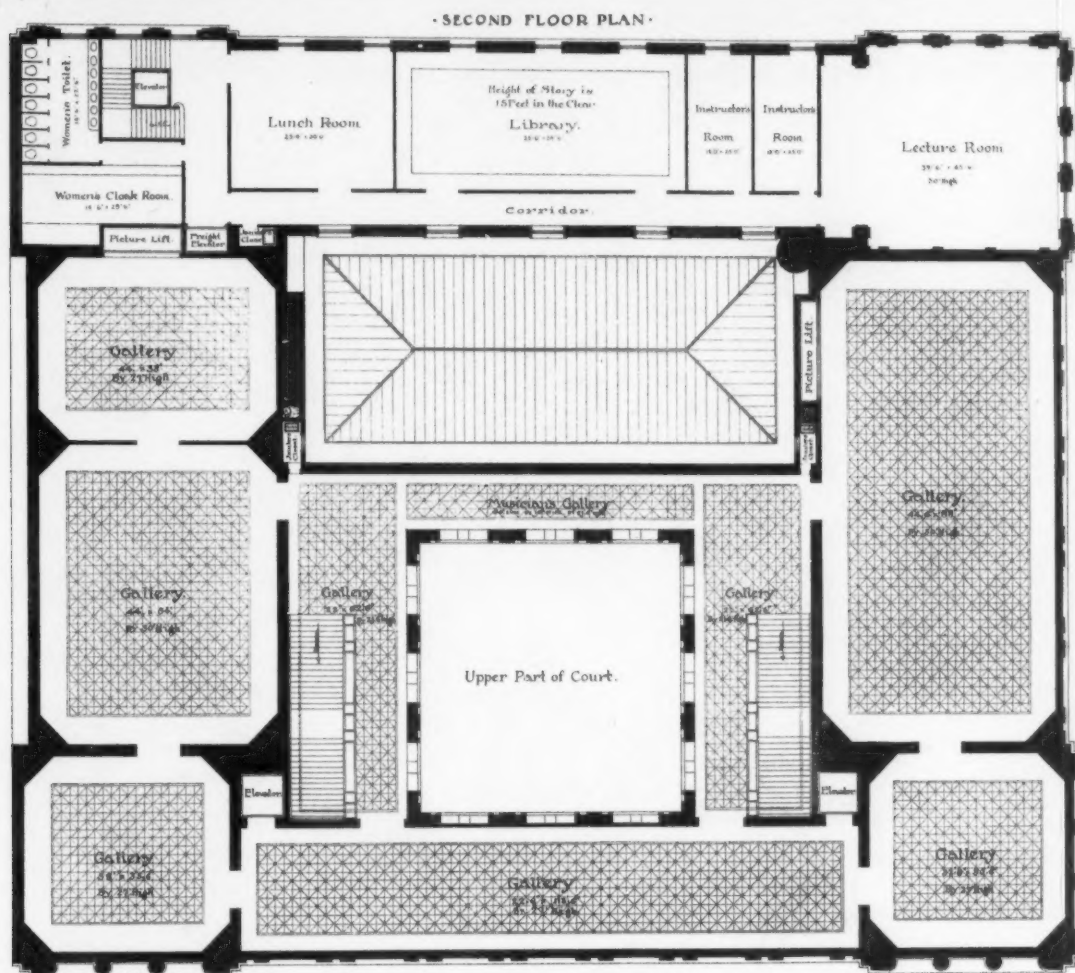
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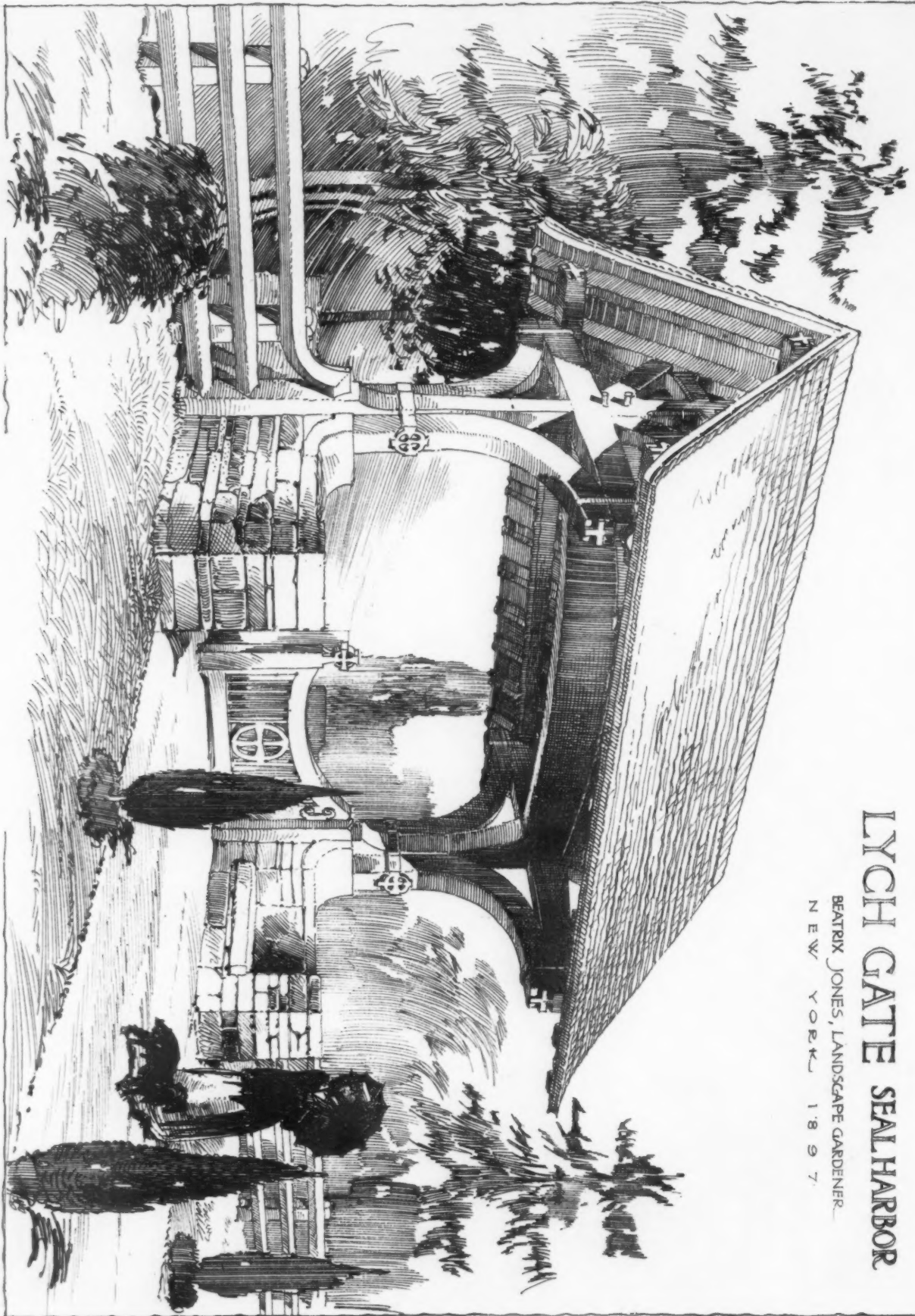
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NEW YORK, 1897.



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TIN ROOFS.

AFTER the brand of tin has been selected there remains the question of how it shall be worked by the tinner in forming the roof. Two styles of tin roofs are applied. One of

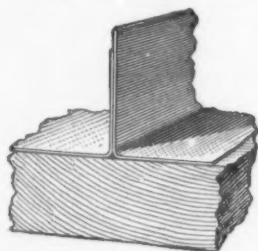


Fig. 1. Edges of sheets turned up—first operation in laying a Standing Seam Roof.

these is known as "Flat-seam" or "Flat-lock" roofing, and the other is designated by such terms as "Standing-seam" or "Standing-groove" roofing. These two styles do not necessarily conflict with one another, for one of them is more adapted to flat or level roofs, while the other is better on roofs having considerable pitch.

Flat-seam Roof.—The tin for flat-seam roofs is first put together in the shop in long courses, which are formed by locking the sheets together with a $\frac{1}{4}$ -inch lock (this connection is known to the trade as the cross-seam). These seams should then be well soldered on the

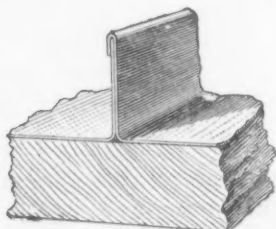


Fig. 2. The high edge bent over the lower—the second operation.

side which is to be exposed, and the other side of the courses should be painted with one coat of paint. The courses are then rolled up and taken to the building. As the tin is laid a $\frac{1}{2}$ -inch edge is turned up at right angles. It is then securely fastened to the roof by nailing as close to the upturned edge as possible, or a preferable way is by the use of flat cleats, as the nails are then driven through the cleats instead of through the courses of tin. Another course is then laid, on which a $\frac{1}{2}$ -inch edge is also turned, the adjoining edges are locked together and the seam thus formed pounded flat and well soldered. Such a roof is best for flat surfaces, but where a pitch of a half-inch or more to the foot can be obtained,

better results are secured by laying the standing seam.

Standing-seam Roof.—The sheets are put together in courses, same as for a flat-seam roof. The courses are laid in the direction of the slope of the roof, and the construction of the standing seams by which they are joined together when on the roof is explained by Figures 1, 2, 3, 4. In the diagrams which we have introduced in this connection we have employed the size of seams to which the majority of tinner give preference, which are, when finished, $\frac{3}{4}$ inches high. The standing seams should not finish closer than 5 inches of the level of the water-line.

Sizes.—There are two standard or regular sizes of Roofing Plates, 20" x 28" and 14" x 20". The larger size is mostly used, from the fact that it requires less seams on the roof, and consequently cheapens the cost of putting

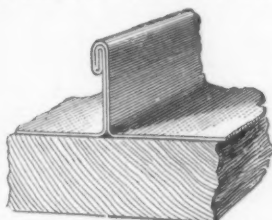


Fig. 3. The top turned over the second time, forming the double seam.

on. A box of either size contains 112 sheets.

Thicknesses.—There are only two thicknesses of roofing plates ordinarily used—IC, which represents in weight 8 ounces to the square foot, and IX, which represents in weight 10 ounces to the square foot.

Advantages of a Standing-seam Roof.—The advantage derived from a standing-seam roof is that the standing seam allows for a greater amount of contraction and expansion than does the flat seam, as in the latter style of roof all the seams are soldered, thus practically making it one solid sheet.

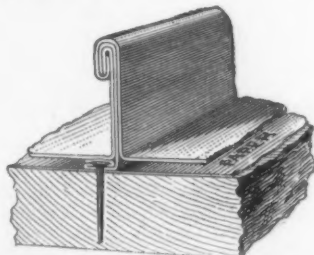


Fig. 4. Paper under a Standing Seam Roof also showing cleat in finished seam.

Construction of the Standing Seam.—We show in Figures 1, 2, 3, the method of making a standing seam. Figure 1 shows the edges turned up, one edge being $1\frac{1}{4}$ inches and the

other $1\frac{1}{2}$ inches high; Figure 2 shows the higher edge bent over the lower, and Figure 3 shows the edges double locked and the same closed. Figure 4 shows how the cleat is in-

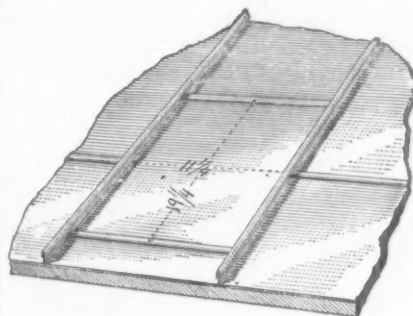


Fig. 5. Standing Seam Roof, 14" x 20" plates, worked the narrow way.

troduced into the seam and the tin fastened to the roof, also the paper under the tin.

Selection of Size.—Many roofers claim that a better roof can be made of 14 x 20 plates than 20 x 28. It costs more to lay a roof of the 14 x 20 size than it does of the 20 x 28 size, owing to the greater number of seams. In our estimation, locality or custom has much to do with the use of the two different sizes.

Standing-seam Roofs.—For standing-seam roofs the best practice is to lay the sheets the narrow way, that is, lay the 14" x 20" sheets the 14-inch way, and the 20" x 28" sheets the 20-inch way, as shown by Figure 5. Laying the sheets in this manner requires more



Fig. 6. Shows where the nails are driven through cleat.



Fig. 7. Shows cleat with cap hammered down over nail heads.

cleats, nails and labor than if laid the wider way, but it gives a better roof. The figures in the cut represent the net surface of each sheet when laid the narrower way, the seam being $\frac{3}{4}$ inches high when finished.

Cleats for Standing-seam Roof are made of tin about $1\frac{1}{2}$ inches wide by $4\frac{1}{2}$ inches long, and they should be placed at intervals of not more than 14 inches, and should always be used of style as shown in Figure 6.

Two good-sized barbed-wire nails should be used for holding the cleat in place. Nailing through a single thickness of tin is not enough to hold the work in place. Always cover the

heads of the nails, and prevent them coming in contact with the roof covering. These considerations give rise to the form of cleat illustrated in Figures 6 and 7.

Red rosin-sized paper under a flat or standing seam tin roof, as under all metal roofs, is an advantage. Figure 4 illustrates the combination, and also shows the form of cleat illustrated in Figures 6 and 7 in position.

Gutters.—For gutters we recommend IX in thickness. The cross-seams should be particularly well soldered and the under side particularly well painted. The course should be well cleated to the boards, and all gutter courses must be above the water-line.

Standing-seam Roof 20" x 28" Plates.—Figure 8 shows the appearance of a standing seam roof, laid of 20" x 28" sheets, and represents the net surface of each sheet when laid the 20-inch way.

If two roofers figure to lay a roof of 20" x 28", and one lays it the 20-inch way, he cannot lay it as cheaply as the one who would lay it the 28-inch way. But the 20-inch way makes the better roof.

Fire-walls.—Have the fire-walls thoroughly covered with tin, which should be strapped or fastened to the walls every 12 inches.

Soldering.—We recommend the use of rosin only as a flux in soldering, and after

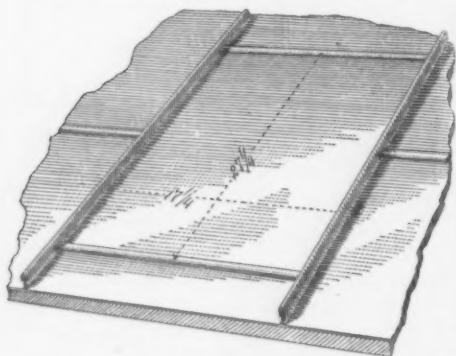


Fig. 8. Standing Seam Roof, 20" x 28" plates, worked the narrow way.

soldering, all rosin should be carefully scraped from the surface, otherwise it will peel off after roof is painted. "Half-and-half" solder (a mixture of half tin and half lead) is the quality most suitable for roofing purposes.

Painting the Roof.—The best paint for the purpose is composed of 7 pounds of the best metallic paint, dry, 1 gallon pure linseed-oil ($\frac{1}{2}$ boiled and $\frac{1}{2}$ raw).

The above amount will cover 500 square feet.

The substitution of benzine or fish-oils for the pure linseed-oil should not be allowed.

The roof will last longer and be less liable to rust if painted on the under surface before laying, and should be so painted in every instance. It should also have two coats of paint on upper side as soon as the roof is laid and soldered. It is a good plan to put one or two layers of felt paper under the tin, to serve as a cushion for same, and to deaden the noise made by the rain falling on the tin. This also avoids condensation on the under side, which frequently causes such a drip as to make it appear that the roof leaks.

A year after the first painting the roof should be painted again, and then a good roof will only require painting once in five years.

The Number of Square feet a Box of Roofing Tin will Cover.—For flat-seam roofing, using $\frac{1}{4}$ " cross locks and $\frac{1}{2}$ " side locks, a box of 14" x 20" size will cover about 192 square feet, and for standing seam, using $\frac{1}{4}$ " locks and turning $1\frac{1}{4}$ " and $1\frac{1}{2}$ " edges, making $\frac{3}{4}$ " standing seams, it will lay about 168 square feet.

For flat-seam roofing, using $\frac{1}{4}$ " cross locks and $\frac{1}{2}$ " side locks, a box of 20" x 28" size will cover about 399 square feet, and for standing-seam using $\frac{1}{4}$ " locks and turning $1\frac{1}{4}$ " and $1\frac{1}{2}$ " edges, making $\frac{3}{4}$ " standing seams, it will lay about 365 square feet.

Every box of roofing plates (IC or IX 14" x 20" or 20" x 28" sizes) contains 112 sheets.

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DECORATIONS TO BE FIREPROOF.

MECHANICS' Fair managers will have no duplicate of the recent Paris Bazaar disaster at their exposition.

One of the interesting precautions against fire which will be adopted by the managers of the Massachusetts Charitable Mechanic Association for its fair in the big Huntington-

avenue Exhibition Building this fall will be specially intended to prevent a repetition of any such terrible disaster as that which occurred in a Paris bazaar last summer. It consists in the practical fireproofing of all fabrics used in the extensive decorations for the great halls, so that if any part of these festoons and draperies happened to come in contact with fire it would not burst into flame—at most, it could only char.

Secretary Henry D. Dupee, for the committee, in a statement regarding the plans regarding decorations, says: "The partial destruction of the Saratoga Street Methodist Church in East Boston, which was caused by a gas-jet coming in contact with draperies which were being festooned in preparation for a concert, calls to mind what a terrible panic might have ensued had this happened during the festivities. Again, it brings vividly to our minds the horrible destruction of life at the burning of the great bazaar in Paris, and a more recent loss from the same cause in Chicago, by the destruction of the great Exhibition Building. The executive committee of the Twentieth Triennial Exhibition of the Association as early as last December took steps to prevent any occurrence of this kind at their coming exhibition, steps which we hope will be copied by all decorators throughout the country, as there is absolutely no necessity for fires arising from causes as above mentioned. We have made a rule which will be strictly enforced, that all fabrics used in the decoration of exhibits must be treated with a solution of tungstate of soda. Since making this rule, we have, through the efforts of our chemist, formed a still more simple and efficacious material with which to impregnate the fabrics, making them slow burning, and absolutely impossible for a blaze to arise on fabrics treated by this method, which is simple and effective."

The Association is trying to make arrangements so that textiles for decoration properly treated with fireproofing solution may be obtained through some Boston business house. The cloth as it comes from the mills can be ignited in a flame with a lighted match, but the same cloth treated with the chemical refuses to kindle when touched by the flame from the match, and merely crumbles and chars, without flaming.—*Boston Transcript*, March 5, 1898.

THE REMARKABLE WEARING QUALITIES OF INTERLOCKING RUBBER TILING.

THE durability of Interlocking Rubber Tiling, manufactured solely by the New York Belting & Packing Co., Ltd., New York, has been strikingly shown in some interesting comparative tests made by Messrs. William Gray & Sons, of Philadelphia, to determine the wearing qualities of different flooring materials.

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NEW YORK.

the revolving surface of the wheel under a pressure of 21 pounds of stone.

The material which showed the least wear under this severe test was the Interlocking Rubber Tiling, which lost only $\frac{1}{8}$ of an inch of its thickness during the hour's rubbing, proving the manufacturer's claim that it is wellnigh indestructible. The English encaustic tile came next, with a loss of $\frac{1}{4}$ of an inch, and the artificial stone known as "Granolithic" was third, losing $\frac{3}{8}$ of an inch. Flagstone lost $\frac{1}{2}$ of an inch. All the marbles wore away rapidly, a piece of marble mosaic disappearing entirely in thirty-five minutes. Most of the wood flooring resisted abrasion better than the marble.

NEW YORK BELTING & PACKING CO., LTD.,
NEW YORK, N. Y.

COMBINED BLIND AND AWNING.

It is a very common, but none the less a very sad, thing to see a business enterprise that has been conducted for many years in a highly successful and energetic manner gradually lose its character and degenerate seemingly through mere *vis inertia*. On examination there seems to be no good reason why decay has set in: the opportunities are as

times. He prefers the old ways and shrinks from the cost and delay of replacing old tools with improved machines, he sticks to the old patterns and hopes that consumers will not realize that there are new ones.



Blind open: outside view.

Mr. James G. Wilson, of 74 West 23d Street, New York, seems to be determined that no such dry-rot shall undermine his well-earned reputation and cherished establishment, and he at least does not shrink from



Blind raised: outside view.

making all efforts needful to keep abreast of the times—and is always on the watch how to improve his shutters, partitions and blinds. Every one knows that a blind is meant to

diminish heat and light in a room while allowing the entrance of air, and it is because the Venetian awning did these things and some others that the awning has so largely supplanted the blind. But the awning has disadvantages of its own, and Mr. Wilson has now put on the market a blind which to its own merits adds those of the awning. This is accomplished by adding gore-shaped blinds,



Blind lowered: outside view.

which take the place of the vertical side of the awning, while it enables the full opening of the window to be covered, in place of the half that can be protected by the awning.

The ingenious way in which this new form of Venetian can be operated, as shown by the cuts, will make this new appliance of the greatest service to householders in warm weather.

SNOW GUARDS, ETC.

THE Folsom New Model Snow Guards are the only perfect protection against sliding snow and ice, or the accumulation of ice at the eaves, which causes water to back up under the slates or shingles. They do not disfigure the roof, and at a little distance are invisible.

The matter of injury to a roof by the application of snow-guards is a serious one, and as instances will probably come to your notice, we would ask you to consider the strong point of the Folsom Guard, which makes injury to a roof impossible. This strong point is what our competitors call its weak point, for the "Snow Stop," or loop part of the guard, is not braced or tied back, which is the only



Blind open: inside view.

many, the output is as excellent, and the demand should be as great. Examination shows that this "petering out"—to use a cant phrase—is due in reality to decay at the top: the mere passage of time has sapped the vital energies of the man who built up the business and has not left him with snap enough to keep up with the progress of the

ALSEN'S PORTLAND CEMENT

is the strongest and most serviceable Cement made, and will permit the admixture of a larger amount of sand or gravel with less loss of strength than any other brand; it is therefore the most economical. It is the finest ground cement made, and has the largest bulk to the barrel.

The following test, made in actual work, by Col. D. C. HOUSTON, Corps of Engineers, U. S. A., at the sea wall around Governor's Island, New York Harbor, has never been equalled by any other cement. It is as follows: Tensile strength per square inch, one day, 384 pounds; seven days, 600 pounds; thirty days, 818 pounds.

For Sidewalks it gives the best color, and the most enduring wearing surface. Most of the prominent Railroad Bridges and the large Office Buildings of the country stand upon a foundation of concrete made of ALSEN'S CEMENT.

Alsen's Portland Cement Works, New York Office, 143 Liberty Street.

AGENTS AT BOSTON: WALDO BROS., 102 Milk Street.

essential point of difference between the Folsom New Model Guard and imitations of it.

In the experimental stages of this guard these strengthened forms were tried, and discarded, as it was seen that a pressure on the "stop" brought a leverage action into play, pushing the brace below the "stop" down on the slate, so as to frequently fracture it, and lifting the "shank" or body part of the guard, so as to pry up the slate above it. No roof will stand this sort of strain very long.

The Folsom Guard is strong enough for any but an unusual strain or shock, and you will admit that it is better for the snow stop to give a little, by bending down, than to have the slates broken, for the stop can easily be bent back into place. Used on thousands of buildings, by leading architects, there has not been a single instance of damage caused by it.

The Shull Overhead Window Pulley is the most perfect sash-pulley made. It gives more pocket room, allowing use of iron instead of lead weights. The cord, tape or chain is attached near top of sash, which need not be grooved. It can be applied in less time than other high-grade pulleys.

The entire weight of sash and balance rests direct on end of frame jamb in a position that the pulley cannot be displaced by the load.

The pulleys are entirely concealed from view when sash is closed and inside stop placed.

No openings for insects and air.

The housing prevents the cord, chain and tape from dismounting the pulley and obviates the use of a mouse in applying the same.

No special machinery required to cut openings for pulleys.

Circulars and catalogues may be had from the

FOLSOM SNOW GUARD COMPANY,
BOSTON, MASS.

THEY NEVER SLEEP.

Has the fact ever impressed you that spring hinges do by far the hardest duty of any hardware? Not only do they carry the weight of a door and suffer the wearing friction of constant usage, but must, besides, automatically close it. Swinging and grinding themselves away — why, what metal except steel is good enough? The Bommer Spring Hinges are made of wrought-steel, and where this famous spring hinge is ordered in bronze-metal there is a continuous steel core from end to end, the bearings being solid

steel turned from the rod. "Practically unbreakable," says the World's Fair Award.

BOMMER BROS.,
351-53 JAY ST., BROOKLYN, N. Y.

REMOVAL.

WE have removed to No. 74 Franklin Street, Corner of Arch Street (two blocks from Washington Street), Boston, where our larger accommodations will better enable us to exhibit our complete lines of hot-water heaters, steam-boilers and radiators.

GURNEY HEATER MANUFACTURING CO.,
BOSTON, MASS.

NOTES.

THE Berlin Iron Bridge Company, of East Berlin, Conn., have the contract for building a new power-house, car-barn and steel bridges for the Port Jervis Electric Railway Company, Port Jervis, N. Y. The buildings will be of a very substantial character, entirely fireproof, covered with the Berlin Iron Bridge Company's patent anti-condensation corrugated-iron. The bridges are plate girder type constructed in a substantial manner for carrying the heaviest loads.

It is the slipping heel that wears the hole in the stocking, and it is the slipping belt that wears the leather. Belts that slip not only do not drive properly, but they wear out rapidly. A belt that is too tight is overstrained, and will also wear out rapidly. A thoroughly reliable belt dressing is therefore a necessity in every well-regulated factory, and probably no dressing has such a world-wide reputation as Dixon's Belt Dressing and Leather Preservative.

As long ago as 1878 it was used on the big driving belt at the Paris Exposition, when every other means had failed to make the belt take hold of the pulley that was to start the thousands of feet of shafting and hundreds of machines. Those who use Dixon's Belt Dressing claim that it prevents slipping and thoroughly preserves the life and elasticity of the belt. It is made only by the Joseph Dixon Cracible Co., Jersey City, N. J., who are known the world over for their graphite products.

In addition to bath-room and lavatory fittings, such as soap-cups, sponge-racks, towel-racks, paper-reels, tooth-brush cups, etc., the Ludlow Saylor Wire Company, of St. Louis, manufacture window-guards, fences, counter-railings, partition-screens, wickets, grille-work and ornamental metal-work of all kinds,

and are extensive jobbers of all kinds of smooth and barbed wires, wire nails, staples, poultry netting, etc.

Send for catalogue and state kind of goods wanted.

THE Hartford City Gas Light Company, of Hartford, Conn., have placed another contract with the Berlin Iron Bridge Company, of East Berlin, Conn., for one of their steel roofs lined with their patent anti-condensation fireproof roof lining, which has given the Gas Light Company such eminent satisfaction in the past. The new building is about 35 feet wide and 70 feet long, having brick sides and iron roof-construction, as mentioned above.

THE Morse Wool Treating Company have just completed at Norton, Mass., an extensive plant for purifying wool. The buildings are of a very substantial character, entirely fireproof, and were designed and built by the Berlin Iron Bridge Company, of East Berlin, Conn. The floors throughout the whole plant are of beams and corrugated-iron arches, to carry the excessive loads common to warehouse construction. The roofs are of the well-known Berlin Iron Bridge Company's patent anti-condensation corrugated-iron.

THE Flexible Door & Shutter Co., 74 Fifth Ave., New York, N. Y., have recently perfected a horizontal rolling-partition with a non-friction joint that is at the same time noiseless as well as dust and sound proof.

It is made to operate easily like a balance shade roll.

They report that their Flexifold Wardrobes are being made a feature of construction in a large majority of the new school-buildings now being erected in New York and vicinity; also in the new High School Building in Pittsburgh, Pa., and in two Grammar Schools in Worcester, Mass.

Their forthcoming catalogue will be profusely illustrated from photographs of work in actual use.

WE regret to learn the death of Mr. Jules Viennot, of Philadelphia, who had by his untiring industry built up an advertising business of no mean proportions. Fortunately his integrity and business capacity were such that his business had secured for itself a firm foundation and it will consequently not be difficult for his successors to hold the esteem of his former customers and probably increase their connection.

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THE destruction by fire, within a few years, of several buildings of what is generally called "mill construction" has called the attention of the public to facts in regard to such construction which were already familiar to architects. One of these facts is that flooring of heavy, unprotected timbers and planks, while it will withstand for a long time the action of burning cotton-waste, or the light fires which commonly occur in mills, does not present anything like an efficient resistance to the intense heat generated by the burning of great quantities of goods in a lofty warehouse. Any one who has observed the instantaneous disappearance of a bit of wood in a blow-pipe flame, and compared this with its leisurely combustion under ordinary circumstances, can comprehend that in great conflagrations, where the flames melt the brick walls against which they strike, and where the air is so intensely heated that a stray current, passing over the intermediate buildings, will set houses a block away into a blaze in a moment, pitch-pine timbers even ten or twelve inches square in section, exposed to the full intensity of the flames, may be, so to speak, instantly melted and volatilized; and appearances, in great fires in mill-constructed warehouses, indicate that this is actually the case, the floors vanishing as if dissolving in the fire. Undoubtedly, a great deal of the so-called "mill-construction" in warehouses would be laughed at by a mill-engineer; and far too little is known of the enormous increase in fire-resisting capacity which is conferred upon heavy timbers and plank floors by a coat of plastering on metal lath; but we believe that nearly all architects, and a good many of the most intelligent owners, are convinced that, considering the troubles from shrinkage, deflection, warping and rot in heavy timbers, and the questionable security which they afford without special and expensive precautions, the mill-construction is, in the end, less economical for the floors and roofs of warehouses than one of iron and terra-cotta or concrete. Owners of real-estate as yet hardly realize that the price of structural metal, considering the superiority in strength of the steel now used over the iron of former times, is now only about one-fourth of that which was paid for it twenty-five years ago; while the other materials and processes of real fireproof construction have fallen in price almost to a corresponding extent; and, while it is true that fireproof building still costs more at the outset than construction with wooden beams, the difference is not great, and the saving in repairs and other expenses incidental to the use of rigid and unshrinkable materials soon makes the steel and terra-cotta construction the cheaper of the two for warehouse purposes.

THE Annual Report of the Boston Protective Department confirms the observations made in New York and elsewhere, that fires, while quite as frequent as ever, are, in the great cities, less destructive now than formerly. A part of the improvement is undoubtedly due to the increased efficiency of fire-departments; but a part is also probably the result of improved methods of construction, which are slowly extending their influence in the cities, and have begun to count as a factor in insurance statistics. Last year, there were in Boston one thousand, four hundred and thirty-five fires, but the average loss was only six hundred dollars and fifteen cents; which is more than one hundred dollars less than the average loss for any preceding year since 1881. And as one hundred dollars multiplied by the number of fires makes nearly one hundred and fifty thousand dollars, five hundred dollars a day have thus been saved to the people of Boston during the year by good building-laws and an efficient fire-department. So far as the building-laws are concerned, their good effect is permanent, and even increases, for every new resistant building adds to the security of the whole region in which it stands, by acting as a bulwark against the spread of those sweeping conflagrations which fire-engineers and insurance-men dread more than anything else.

MR. AUGUSTUS LAVER died at his home in California a few days ago. Although of late years he had not been very active in the profession, few architects of the older generation could count so many important commissions in their career as Mr. Laver. He first became conspicuous as the designer of the Canadian Parliament House, at Ottawa, a work which brought him deserved reputation. This was hardly completed when he won, in competition, as we believe, and in connection with Mr. Fuller, of Albany, the commission for the New York State Capitol. A great deal of work had been done in carrying out their design when, as our older readers will recollect, the State Government suddenly decided to take the building out of Messrs. Fuller & Laver's hands, and confide it to an artistic triumvirate, composed of Messrs. Richardson, Eidlitz and Olmsted. On the ground of professional ethics, the change was earnestly opposed by the architects of New York; but State authorities do not pay much attention to professional criticism, and Messrs. Richardson and Eidlitz took charge of the building, while Messrs. Fuller & Laver removed to San Francisco, where they had won, also in competition, the commission for a new city-hall. The history of the construction of the San Francisco City-hall was not without its lights and shades, so far as its architects were concerned; but they finished it without serious trouble. Meanwhile, Mr. Laver had made many friends, and, besides this building, he designed the great Flood mansion, at Menlo Park, together with another, for Mr. Coleman, in the same neighborhood, as well as the Flood Mission, and many less important structures.

AT the time when the City-hall in San Francisco was built it was generally understood to be dangerous to erect any structures more than two stories high in that city. If we are not mistaken, one of the conditions of the City-hall competition was that the main part should only be two stories in height; and low buildings were the universal rule. The reason for the adoption of this modest style of construction was that the inhabitants of the city stood in constant fear of earthquakes, which were very common, and were often severe enough to throw clocks off the mantels in houses even two stories high; so that it was agreed that a high building, such as would be suitable for an Eastern city, would infallibly be destroyed in San Francisco. It was, therefore, with something like terror that the Californians saw, a year or two ago, a nineteen-story office-building going up in the heart of the earthquake district. Until within a short time, this structure, which is of the usual steel-frame pattern, had not, apparently, been called to the attention of Poseidon, but a few days ago the Earth-shaker tried his hand upon it, with an earthquake of a severity rarely equalled, even in San Francisco, and it is most satisfactory to learn that it resisted the shocks perfectly, examination showing no injury whatever from the trial.

THE Pennsylvania State Capitol Commission is said to have decided to invite new bids for the building under their charge, upon modified plans. It will be remembered that the first bids on the plans as accepted from the architect were

about twice as large as the sum to which the cost of the building was limited by law. As it was evident that a contract could not legally be entered into with any of the bidders, at such a price, the Commission invited the bidders to submit propositions, with bids, for modifying the plans and specifications so as to reduce the cost of the building. In accordance with this invitation, several schemes of different sorts were submitted; but it is said that none of them fulfilled the requirement that the cost should not exceed the appropriation of five hundred and fifty thousand dollars; and there was also a grave doubt whether a bid of this kind was such a competitive bid as the law required; and the Commission has done wisely in exercising its undoubted right to reject all the bids, and in making a fresh start, using the revised plans which the architect has prepared. It is not yet generally known what changes have been made in these from the original plans, but it is understood that the material of the exterior is to be brick, in place of the marble which the architect and the Commission wished to use.

FOLLOWING the excellent practice which has prevailed for several years in Boston, the Master Builders' Association and the journeymen bricklayers of the city have just submitted to arbitration the question whether the standard minimum rate of wages for bricklayers shall be raised this year from forty-two to forty-five cents per hour, as requested by the journeymen. The arbitrator, Mr. Edward Connolly, in an interesting report, which we print in full elsewhere, decides in favor of the journeymen, on the ground that the minimum rate in the other large cities is, generally, higher than forty-five cents, and that, while Boston workmen are as capable as those of other places, the cost of living there is quite as great as in most American cities. These are excellent reasons for his decision, and if labor controversies could always be decided in accordance with such considerations, without wasting time on nonsense about the "right of the producer to the product of his toil," or the "greed" of capitalists and corporations, it would be better for every one concerned; but Mr. Connolly's report indirectly suggests a point which workingmen do not consider as they should. Comparing the standard rate of wages in different cities, he observes, following Mr. Carroll D. Wright's statistics, together with some, relating to Boston, from other sources, that, while the average weekly income of a journeyman bricklayer in New York is about fifteen dollars, it is nineteen dollars in Philadelphia, and something over seventeen in Chicago, but only nine dollars in Boston. As Boston bricklayers have been receiving forty-two cents an hour, and working eight hours a day, it is obvious that, instead of being steadily employed, which would give them an income of more than twenty dollars a week, they are at work less than half the time; and it seems to us that the friends of Boston bricklayers could do them much more good by devising means for keeping them steadily at work than by urging an increase in the standard hourly rate of wages, which, if it should check building, as, under present circumstances, it undoubtedly will, operates simply to reduce still further the income of the men. It may be said that the climate of Boston is less favorable to outdoor work than that of Philadelphia, but it is quite as favorable as that of Chicago, where a bricklayer, with wages twenty per cent higher than those of his Boston brother, has nearly twice as much money to live on during the year. The capitalist, accustomed to watching the operation of the law of supply and demand, says, if his goods sell slowly, that his prices are too high for the market, and reduces them, finding it better to sell a thousand dollars' worth of goods, at five per cent profit, than four hundred dollars' worth, at ten per cent profit; and sooner or later the question of regulating wages to meet the local demand, rather than to suit cloudy views of the "dignity of labor," or "eternal conflicts," will be taken up, very much, as we believe, to the advantage of workingmen, to whom a high rate of wages is of little value, unless they can find some one to hire them.

THE Twenty-second Annual Report of the Boston Museum of Fine-Arts contains some interesting particulars. The effect of political agitation has been felt in the serious falling-off of income, the year closing with a deficit of about forty-six hundred dollars; and the Trustees urgently remind the public that, while the Metropolitan Museum in New York draws ninety thousand dollars a year from the city treasury, the Boston Museum depends for maintenance upon the income

from such of its funds as are not specifically restricted, which is less than half enough for the purpose, eked out by subscriptions. It is the practice to invite each year subscriptions of ten dollars from persons presumed to be interested in the Museum, for helping to pay current expenses for the year, and about one-third the income of the Museum is derived from this source; but the subscription-list might well be much longer.

NOTWITHSTANDING its circumscribed means, the Museum has made good progress during the year in enriching its collections. The Gray collection of engravings, which belongs to Harvard University, but has for many years been kept at the Museum, was this year withdrawn, the University having now a Museum of its own; and with the Gray collection was also withdrawn the smaller Randall collection. This withdrawal took from the Boston Museum about thirty thousand prints, and seven hundred books, but it happened that a large private collection, containing about twenty-three thousand prints, was for sale in New York, and, on the advice of the curator of the Print Department, Mr. S. R. Koehler, it was purchased from a special fund. Meanwhile, some eleven hundred prints had been presented to the Museum by private owners, and a few desirable specimens were bought; so that the collection, although, so to speak, transformed, is again of great interest and value. In the Department of Classical Art, which is under the charge of Mr. Edward Robinson, some valuable acquisitions have been made, among them being four antique marbles. One of these is a life-size statue of Apollo, presumably a Roman copy of a bronze figure of the Hellenistic period; another is a fragment, consisting of a torso of a goddess, with the back unfinished, as if the figure was part of a work in high relief, attached to a background. The execution is so fine that Mr. Robinson believes the figure to be original Greek work, dating, probably, from the early part of the fourth century, B. C. The third acquisition is a head of Hercules, and the fourth is a portrait bust, of life-size, probably a Roman copy of an early Greek work. Besides these marbles, a figure of a lion, in local stone, found at Perachora, near Corinth, has been purchased. This figure, which is archaic in style, is in good preservation. In addition to these, a considerable number of vases and terra-cottas have been bought, or acquired by gift, and sixty-three coins, mostly Greek, have been added to the Museum collection.

THE bill for establishing a College of Forestry at Cornell University, and for placing in its hands for management a tract of thirty thousand acres in the Adirondack Mountains, has been passed by the New York Legislature, and signed by the Governor, and its provisions are to be immediately carried out. The faculty of the College is to consist of a professor, two instructors, a forest manager, and such rangers and superintendents as may be required; and it is provided that the proceeds of timber cut and sold from the College forests shall be paid to the State. The intention evidently is to try to found a school which shall be to this country what the great foreign schools of forestry are to Germany and France; and, in view of the immense value to a territory like ours of the restoration of the natural growth of timber, and the proper administration of the dwindling forests which still belong to us, it is to be hoped that it will receive the popular support that it deserves. In Germany, there is no profession more highly esteemed than that of forest administration; to the knowledge and skill of his confidant and friend, the manager of his forests, the great noble often owes the largest part of his income, and the sons of aristocratic houses not unfrequently prepare themselves, by professional study of the sort, for the duties which will devolve upon them in the care of great landed estates. Although we have no counts or princes, and no laws of entail for keeping together the landed property of wealthy families, it is already easy, and might be made still more so, for corporations to hold, for a term of years long enough to carry out its plans, large tracts of land suitable for growing timber; and, while such corporations are usually obliged by law to sell their land at the end of a given period, they are, to a certain extent, compensated for this restriction by the trifling present cost of such property, which would make the profit on the original outlay when the land was sold, at, perhaps, the end of one hundred years, with its covering of well-matured timber, great enough, and sure enough, to be very attractive.



IT may be of interest to review the situation here in Chicago relative to the licensing of architects and the work which the Board appointed for the purpose has already accomplished. After this Board had been appointed by the Governor it found itself in rather a curious position — a body with a good deal of work before it, and not one cent of money in its possession with which to accomplish such work. Fortunately one of our well-known architects, on going abroad, placed his office at the disposal of the Board, so one difficulty was removed. Stationery and stamps were the next most essential things in the list of equipments, and these were temporarily furnished by the individual members of the Board itself. As soon as the actual licensing was begun a fund for running the office was established, till, at present, the Board has a balance of about thirteen thousand dollars. As may be remembered, it was planned that, previous to January, 1898, all persons who could show proof that they were practising architects should, upon the payment of \$25, be granted a license to continue in such practice. To draw the line, especially in several of the smaller towns, between contractor and architect has been the one difficult feature of this part of the work. The accepted definition of an architect for this especial case seems to have been: a man who makes plans for buildings which he does not build himself. In most cases where there was any doubt about the applicant's living up to such definition he has been given the benefit of the doubt. After the first of January the real work of the Board began, as all applicants for license then had to pass the regular examination, the fee being no longer \$25 but \$40. So far, the best examination has been passed by a man who has worked up to the profession by way of the trades, the second-best test was stood by a male graduate of one of the European schools, and the third by a female graduate of an Eastern technical school.

At the present time the number of licensed architects in the city is 519, in Cook County outside of Chicago 13, in Illinois 154. Nineteen licenses have been granted to architects from other States. The total number of applications for licenses was 793, while since January 1st the number of applications for examinations has been only 25.

It was decided that in case of the application for a license from any reputable architect from another State it should be granted after the payment of the fee of \$40, the examination to be on plans, made and submitted by him, of some considerable building actually constructed.

With already a considerable balance on hand and the likelihood of a continual small revenue yearly from the licenses, the question of the use of such funds for the advancement of the profession will naturally arise. At present the matter stands that whatever there is in excess of \$2,500 shall be turned over to the State treasury "for the credit of the Board," which appears somewhat vague. There will occasionally be small legal expenses in connection with unprofessional practice, one of the few cases where the Board can itself discipline being where a licensed practitioner shall be guilty of unprofessional practice. In case of an architect failing to use his seal on his drawings the Board may revoke his license, but all other prosecution for offences against the law must be undertaken by outsiders.

All this work has been accomplished under the State law, but the matter is now being discussed of a revision of the city ordinance requiring that all drawings shall be made by licensed architects, with a few insignificant exceptions.

Although this winter closes a season of extreme dulness in architectural circles and the actual work going on in architects' offices is very small compared with what it has been in former years at this season, still there are indications of better times, and building-schemes are being discussed which are of a more speculative nature than the small dwelling-houses and occasional repair-jobs which have been the main hope of the majority of architects here in our city for at least the last nine or ten months. One of the largest pieces of down-town work at present is somewhat in the nature of repairs, as changes will be made in the retail store of Mandel Brothers which will absorb into itself the remaining southern part of the block on State Street, where the present store is situated.

The foundations for the new post-office are progressing, if you can say that a thing that sinks rather than rises, progresses. The piles are practically all driven and the drawings and specifications are now in the hands of the contractors for figuring, and there is talk of laying the corner-stone by next October.

As said above, the atmosphere in architects' offices is one of hopeful expectancy, but so great is competition here now and so eager has been the rush after even small pieces of work, that the average architect has become practically tongue-tied, from fear he would give

away the suggestion of some possible building-scheme to be worked up by his rival in the profession. As a result of this dulness many architects have turned towards other fields of activity and in other places, while several have given up their thoughts to subjects akin to architecture though not of it. Some of the young men with the strong artistic tendency uppermost, and whose past career has not given them the wide practical experience of older architects, have entered enthusiastically into a new movement which comes forward under the patronage of an association known as the Arts and Crafts Society. At the approaching architectural exhibition at the Art Institute the work of this Society will have a prominent place, and it will be most interesting to see what is being accomplished along the lines which are being followed. The members of the Society, as its name would indicate, work from their own design, in wood, metal, or any material, in fact, which will give good honest results in articles substantial and artistic. Of course, when viewed by the side of cheap, badly-designed machine productions, these things are infinitely better; but the tendency of the guild seems, to an outsider, to be one of belittling much really beautiful work, done perhaps by a man or woman who has made such work the profession of his or her life, but who, having passed the period of crude (archaic, if you will) simplicity, in which many of the Arts and Crafts people now are, has reached the period of more elaborate design and execution. Of course, it is well known that, on one hand a vase the very simplest in design and execution has often been the best of a style or line of work, but, on the other hand, we would all admit that the crude form of a Zuni vase is not as perfect as something turned out from one of the best potteries in Europe. At many of the talks of the Arts and Crafts people there is much wild discussion about, if not actually the abolition of the machine, at least its partial suppression. Of course, this is arrant nonsense.

Taken from an artistic standpoint alone, we can judge of this movement better after than before the exhibition, and, even then, human taste is such a corrupt and curious contrivance that we often have to let our desires cool, as it were, before we know whether they are going to crystallize into a good genuine longing for a certain thing that we will not tire of, or which will not dissolve and vanish like a foolish child's "I want that." Certainly all over the country the manual training of our American hands, which, in many classes, were too prone to be idle, is a good thing, and the cultivation of the artistic perceptions along with the hands will always be a rich source of pleasure and profit.



THE Public Health Committee of the County Council has lately made an energetic move in regard to overcrowding in lodging-houses. This is, indeed, the insistence that certain existing provisions and powers already in the hands of the Vestries should be utilized by them. The case forms,

however, a curious instance of the manner in which, in the past, Vestries have been able to ignore their duties and make a dead letter of far-sighted legislation.

So long ago as 1866 a Sanitary Act was passed making certain regulations as to the letting of tenements to more than one family in a single house, and giving the local sanitary authorities power to frame further by-laws and to insist on the provision of a minimum cubic space per inmate and the maintenance of a standard of cleanliness and repair. It is proper to state that this Act does not refer to common lodging-houses, *i. e.*, those providing shelter for individual persons not of one family. These are regulated directly by the County Council. The Act appears to have been passed before the times of the development of sanitation, for use was made of the powers thus conferred in only a small number of the Vestry authorities. About 1885, however, the majority of the Vestries adopted by-laws under the stimulus of the Report of the Royal Commission on the Housing of the Working Classes, 1884. But again many Vestries proceeded no farther and contented themselves with framing by-laws never to be enforced, while others went thoroughly into the work of registration and inspection and enforced a marked improvement in the matter of overcrowding and general sanitary conditions. Another impetus was given by the Public Health Act of 1891, which increased the powers of the Vestries and permitted the interference of the County Council in cases of neglect of duty by the Vestries. This reduced the number of the apathetic Vestries and for a while much energy was shown. Of late, however, the original negligence appears to have crept in and the County Council, seeing this, has determined to use the powers conferred on them by the Public Health Act of 1891. A report of progress which lately was presented by

¹ Continued from No. 1158, page 79.

each of the Vestries to the County Council serves to show very clearly the use each has made of its powers as well as the possibilities which lie in the right use of those powers. All the Vestries have now framed regulations, and the most energetic demand not less than 400 cubic feet per inmate. In this respect the by-laws of the various Vestries are practically in agreement; on another important point, however, there is considerable variation. This is the limit of rent per room which exempts a house from registration and inspection. An active Vestry rules that all lodgings let for less than 8s. per room in the case of unfurnished and 11s. in case of furnished rooms shall come into registration. A case in point is that of Westminster, where the work of inspection is energetically carried out and penalties for breach of by-laws rigidly enforced. In this district, out of 4,915, the total number of inhabited houses of all classes, no less than 1,190 stand on the Register of Lodging-houses; and this undoubtedly contains practically the whole of the houses which come within the meaning of the by-laws. An indolent Vestry, on the other hand, will put the rent limit as low as 2s. 6d. per room in case of unfurnished and 4s. in case of furnished rooms. This practically excludes the whole of the houses for dealing with which the measure was designed and makes the Act inoperative. Stoke Newington has by-laws based on this scale, and although the number of inhabited houses is over 5,000, the district being distinctly poorer on the whole than Westminster, the returns show that not a single house appears on the register. Some Vestries do not avail themselves even of this transparent evasion. They simply frame specious by-laws and make no attempt whatever to enforce them. It is to this group that the County Council is now more particularly turning its attention. Very direct request has been made for evidence that the by-laws will be utilized, and the County Council has granted but a short space of time for this to be furnished. Failing this, the Local Government Board will be acquainted with the facts according to law, and the Vestries will thus be brought to a proper appreciation of their duties. Excuses have, of course, been framed to the effect that the work is too great, that the sanitary inspectors are already overworked and that the Act is unsuitable for application to poor districts; but the example of other Vestries forms a standing object-lesson that these excuses have no basis in fact; and the County Council is apparently determined that the Vestries shall learn the lesson that the permission of overcrowding and unhealthy conditions of life is at best the falsest of economy.

The Vestries are doubtless animated by a double motive in thus neglecting to make use of their opportunities. First, the task entailed by the registration and inspection is one of no small magnitude, and, secondly, the condition of things revealed by genuine returns would be such as would certainly call for immediate action; both of these, as involving new and unwelcome expense, are distasteful considerations in the eyes of the Vestries: the attractive policy therefore has hitherto been one of apathy.

But while the Vestries have thus for so many years refused to state the problem, other bodies and individuals have been pressing on towards a solution. One of the greatest advances appears in the London County Council clearance and rebuilding at Bethnal Green E., as described in these columns a few months ago. Another movement, of a different character, but applying to the same question, is that which found its origination in Lord Rowton. It consists in the erection of large self-supporting model lodging-houses, where working-men and those without homes may live in comfort and decency at the small fee of 6d. per diem. The first of the houses was erected at Vauxhall in 1893, for 475 inmates, at a cost of £30,000, and so great a success was this, both socially and commercially, that further "Rowton Houses" have been built, one at King's Cross and another at Newington Butts. These three now in use accommodate nearly two thousand persons, and other "Houses" are in course of erection at Hammersmith and Whitechapel. The great building at Newington, finished this winter, is capable of accommodating over eight hundred persons. It is solidly constructed of Leicester red and Kent yellow bricks with terra-cotta dressings and with glazed brick dados, generally, internally and glazed faience chimney-pieces. The floors are fire-resisting, with wood-block in oak and other hard woods, and the sanitary and ventilation work is of the most modern and approved type. The ground-floor, which is 11 feet high in the clear throughout, contains smoking-room 72 feet long and 1,600 square feet in area, reading-room 129 feet long and of 2,500 square feet in area, providing seats and tables for 150 men, and dining-room with area of 5,300 square feet, accommodating at one time 400 persons. Next this is a commodious shop where all kinds of cooked and uncooked provisions may be obtained, and on the other side is the scullery, where cooking facilities are provided and culinary utensils may be borrowed. Over these rooms is an extensive promenade formed by the flat roof, furnished with seats and overlooking an adjacent public recreation-ground. The rest of the building is carried up in six floors to contain the dormitories, which are arranged on the cubicle system: each cubicle measures 7' 6" x 5' in the clear and provides each person with 427 cubic feet of air-space. The basement is divided between the establishment service departments and bath and lavatory accommodation for the inmates. Lavatories of eighty basins and ample automatically flushed water-closets and urinals are provided, and hot water is laid on to foot-baths and ten ordinary baths. In addition, facilities are provided for washing and drying clothes; and on this floor are also to be found barbers', boot-makers' and tailors' shops and a separate locker for each lodger.

This is the accommodation that can be provided for 6d. per day, and it is no matter of wonder that workmen are leaving their lodgings in slums and the foul and noisome "doss-house" as fast as the better accommodation can be provided.

The rookery in London is, in the manner I have indicated, gradually becoming extinct, and the rough and debased natures which poverty and squalor foster decrease in equal proportion. So many active agents are now engaged, in one form or another, in improving conditions that neither time nor opportunity exists for the formation of those terrible corners which, some years ago, were so common in London, the refuges of the criminal and vicious, hot-beds of disease and miserable degradation. Such was the district which was broken up lately by the County Council in their wholesale clearance of fifteen acres at Bethnal Green, and which, by the way, has in its old condition become so familiar lately at the hands of the novelist, Mr. Arthur Morrison, under the title of "*The Child of the Jago*." The lowest class of society disturbed in this way returns no more to the district when the area is reconstructed, but rather discovers another locality nearest approaching in character that from which it has been disturbed. Thus a new area potentially bad becomes so in fact and, by the intolerable nuisance in this way created, qualifies itself for destruction. As the movement continues the possibilities of men and matter hostile to the common weal diminish, and, slowly but surely, the greatest of problems attaching to a great city passes into solution.

The vast work entailed in the decoration of the interior of St. Paul's Cathedral goes forward steadily. To those of a retentive memory, revisiting the metropolitan church, the change that has taken place within the past ten years must appear very striking. The decoration of the chancel, including the insertion of the marble reredos, has been complete some time now, and the treatment of the ceiling and spandrels in mosaic, enhanced by the white marble with which the original stonework has been cased, has met with practically universal approbation. The completion of so substantial a portion of the entire structure as is the chancel conveys an idea of the extraordinarily impressive character the Cathedral will possess when the decoration is carried to the parts still cold and gray. Sir W. B. Richmond, R. A., to whose hands the whole of the work is entrusted, is now proceeding with the intermediate arches of the dome connecting the chancel and nave arches with those opening into the north and south transepts respectively. The treatment of these arches has nearly always been attacked in important criticisms of Wren's great work, and the architect himself was not unconscious of their awkwardness. Fergusson objects that they "lead nowhere" and "are filled up by a series of constructional expedients as destructive of architectural effect as anything ever designed." For this reason the work now in hand is of additional importance, and it will be interesting to see whether the artist will be able, in decorative treatment, to cloak these defects as ably as he has, by the medium of mosaic, concealed the weakness of design in the chancel. The choir-aisles are to be proceeded with next and the plain band 20 feet high which occurs in the dome immediately above the Whispering Gallery. They will cost between £15,000 and £20,000. After this the nave and transepts will receive attention. At the end of last year a special commemoration service was held in the Cathedral to celebrate the bi-centenary of the opening and in acknowledgment of the tradition that Sir Christopher Wren was a Freemason. The service was attended exclusively by Freemasons, who flocked from all parts of the country in numbers greater than even the great building could accommodate. The offertory, amounting to many hundreds of pounds, is to be devoted exclusively to continuing the decoration work. Some particular part of the building will be completed thus with a legend recording the fact of the Freemasons as a body jointly aiding in the completion of Wren's work.

In the earlier stages of the work Italian mosaic-workers were exclusively employed, as it was impossible to obtain Englishmen as skilled in the craft as the importance of the work demanded. But it is interesting to note that the work is now being carried on partly by Englishmen, who have so far entered into the knowledge of the material and its handling as to vie in execution with the Italians. They have obtained their training directly under the eye of Sir W. B. Richmond, who speaks very highly of their workmanship. Their appreciation, he says, of the demands of particular position and lights is such that he has been enabled to modify the former constant individual superintendence and the work has, consequently, proceeded with much greater speed. The task is great as well as the expense, and the very nature of the work is opposed to all hurry. But there are those who hope that the artist who began the work and has carried it through to the present point in so eminently satisfactory a manner may yet live to see the interior of St. Paul's Cathedral in the full richness and glory of completion.

Of actual work, the centre of interest at the present time is laid in Westminster. In the Parliament Street direction the work of clearance is rapidly proceeding in preparation for the erection of new Government offices. This is a great scheme, involving the expenditure of over £2,000,000, and will, when completed, totally alter the character of the south end of Parliament Street. I had the pleasure of describing some time ago the details of the scheme, but as the architects for the work have not yet been chosen it is still impossible to speak of the question of design. Incidentally and to show the value of the properties which the Government has had to acquire, the jury of assessment lately fixed the value of a single corner house,

the lower part being used as a restaurant and the upper stories as offices, at 37½ years' purchase. The rent is £700 per annum, and the cost to the Government for this simple four-storied small house is, therefore, no less than £26,250. In this general movement in the matter of Government offices Downing Street will not escape entirely. Nos. 11 and 12 are to be taken down, but it is welcome to find that No. 10, from its historic associations as the residence of the First Lord of the Treasury and the scene of the majority of modern Cabinet Meetings, is to be retained internally in its present condition, the exterior only being refaced. In another part of Westminster building operations are proceeding very actively. At Millbank on the site of the old Millbank Prison the London County Council have commenced to erect dwellings for the working classes to accommodate about 4,500 persons.

In addition and in connection with this will be built baths and wash-houses and a board school, and a farther part of the site is marked out for an extensive military barrack. In the centre of this valuable site and fronting on to the Grosvenor embankment is the Gallery of British Art. This has only lately been opened, but orders for enlargement to treble the present size have already been given by the original builder and donor, Mr. Tate. Near these works stands the Vauxhall Bridge, which is about to be rebuilt. A design has been approved by the Bridges Committee of the County Council and the new structure will, it is said, be a striking addition to the Thames bridges. The levels of the new bridge will be such that considerable alteration will be necessary to the river embankment generally at this point. This will doubtless be considered in any work that may be done in connection with a further improvement scheme for which the County Council are now seeking parliamentary powers. The intention is to sweep away a large number of wharves and small houses which at present fringe the river bank between the Houses of Parliament and the Grosvenor embankment. The river would then be thrown open by forming a new embankment along the entire front some half a mile. This clearance, if carried out, will, for many reasons, be welcome, as the property involved is poor and, as a thoroughfare, the proposed embankment would possess attractions which the present narrow, and somewhat mean, street does not boast. From a practical and local point-of-view, however, the scheme will doubtless be strongly opposed; the wharves form a depot for coal, timber and other water-borne goods, and such wharves, of particular local importance, from their West End position, have a value which increases with the gradual removal of West End wharves. Some are likely to oppose the scheme from the point-of-view of sentiment. The district in question is very vividly described in Dickens's "*David Copperfield*," and though neither in the pages of the novelist nor in actual fact can the quarter be styled attractive, yet for old sake's sake many would wish the original of a famous word-picture retained as far as may be. In addition to the embankment the formation of new contiguous streets is included in the scheme, and these would cut through and abolish some of the worst quarters still remaining in Westminster. As a corollary to the improvements would follow the rebuilding of Lambeth Bridge, one of the most expensive and ugliest of the Thames bridges and, withal, the least efficient for carrying heavy loads.

Another quarter of Westminster farther from the river will soon possess an attraction in the form of the new Roman Catholic Cathedral now in course of erection. And, independent of all these enterprises, a syndicate has just been formed to purchase some of the worst of the Westminster property, with a view to rebuilding and general development. The scheme includes the destruction of property of a ratable value of over £40,000, and the syndicate is headed by so sound a financial leader as Sir John Lubbock.

One movement doubtless induces another, in the amelioration of a poor district, but the alterations that have taken and are taking place in Westminster are none the less remarkable. Twenty years ago no spot in London contained a greater degradation and lawlessness than did Westminster, but gradually a change has taken place, the first step being taken by your countryman, Mr. Peabody, and now Westminster is in process of becoming one of the most fashionable and popular districts in London. This is not less easily to be understood when it is remembered that Westminster is among the most central localities of the metropolis. The remarkable thing rather is that the development has been so long delayed.

THE CREMATION OF DUST-BIN REFUSE.

IN an article bearing the above title, which appeared in a recent issue, *Engineering* referred to the fact that a speaker in a recent discussion had stated that at Shoreditch thirty tons of coal per week have been burned in destroying refuse. Our attention has been called to this allegation, and we are assured that there is no possible foundation for the statement made. We were invited to visit the destructor works of the Corporation, and form our own opinion upon the subject. We took advantage of this request recently, and at the central station of the borough in Hoxton Square had an opportunity of seeing the method of working.

It will be remembered that there are twelve destructor-cells, which were erected by Messrs. Manlove, Alliott & Co., of Nottingham. Each cell has 25 square feet of grate-area, and there is a water-tube boiler to each pair of cells. The cells and boilers are in a battery of two rows, and are placed back to back; and each boiler is sandwiched in between a pair of cells, the boilers and cells touching each other

and their respective furnaces side by side. Ordinary grates are fitted to the boilers, so that coal can be burned in the usual way for raising steam if the refuse runs short or is of too poor a quality. It is, however, very seldom that the refuse falls short in the last-named respect, and the normal method of working is to take the heated gases from the destructor cells and pass them directly into the boiler furnace by means of holes cut in the dividing-wall between the furnaces of the cell and boiler respectively. The destructors are fitted with drying hearths at the back of the furnaces, and on to these hearths the green refuse is shot from above. As it gets dried, the firemen rake it forward from time to time. The fumes given off by the drying refuse pass over the fire and are thus burned.

At the time of our visit all the cells but one were in operation, and steam was being generated by the burning of rubbish only. Of this there was no doubt; and we may say at once that there can be no doubt that the destructors are capable of effectually burning the rubbish brought in at Shoreditch without the assistance of other fuel, and of generating a considerable volume of steam in doing so. The statement as to thirty tons of coal being burned per week to destroy the refuse is evidently erroneous. No effort is made at Shoreditch to sort out the rubbish. All that the dust-carts bring in — tins, pails, old boots, gallipots and all things combustible or incombustible — are swallowed by the furnace, to come out again in the shape of clinker or fine dust, or to be carried to the boilers as gases. The steam-pressure at the time of our visit was, according to gauge, about 160 pounds, and this was well maintained with refuse alone. This, too, included a time when the greatest demand is made for steam by the electric-generating station, namely, between the hours of four and six o'clock.

So far we have given the results of our own observations, but we also gathered some interesting particulars from the engineer in charge of the work, Mr. E. Willsheer, and from Mr. R. F. Ferguson, Messrs. Manlove, Alliott & Co.'s engineering representative. These gentlemen informed us that no coal whatever is burned in the destructor-cells under any circumstances, the refuse always being self-consuming. The amount of refuse is, however, limited, and there is not always sufficient to generate all the steam required for the Corporation public electric-supply station, which not only supplies current for electric-light, but also a considerable quantity for the numerous motors that are used in the cabinet trade, which is the staple industry of the district. The station also supplies its own steam for driving fans for forced draught in the destructors, pumping water, etc. The practice is to burn refuse day and night, so long as it lasts; but at times, when the demand for current, and, therefore, for steam, is light, the draught is kept down, so that burning goes on comparatively slowly. In consequence of the numerous furniture-making factories, which are largely driven by electric motors, the load factor is more constant than it would be were the electric current used for lighting only, and there is a fairly constant, though, of course, decreased, demand all through the day. As the evening comes on the load rapidly increases, as in all central stations, but so long as there is sufficient refuse this alone is used to keep steam under ordinary conditions. When the refuse gives out the destructor furnaces are banked, and the boilers are fired on their own grates by coal in the usual way. The total quantity of coal burned averages about ten tons per week. There are, however, exceptional times, when the refuse brought in is extremely bad, from a steam-raising point-of-view, and then a little coal has to be burned on the boiler grates to help over the highest peak on the load diagram, which generally occurs between five and six o'clock, and reaches something over 500 indicated horse-power. The maximum ever burned in this way has been four hundred-weight per day, which certainly is a trifling quantity. A stock of coal is kept — it is under lock and key — to be used in case of a heavy snow-storm, when the parish carts would be occupied in clearing the streets in place of bringing in refuse. The Shoreditch dust-bin refuse does not appear to be of an exceptionally high quality for London, as might be anticipated from the pooriness of the neighborhood. The quantity, of course, varies; but the total amount of refuse brought in appears to be, roughly, something over seventy tons a day, to judge by a number of records which we examined. Of this, perhaps, from a thirtieth to a fiftieth part is trade refuse, consisting chiefly of paper and straw, for the burning of which the vestry charges three shillings per ton. The paper is not put in the destructors, but is burned in the boiler furnaces, and is one of the most troublesome things that has to be dealt with. The standard pressure for draught in the ash-pits of the cells is ½ inches on the water-gauge.

In connection with these destructors it will perhaps be of interest if we refer to an experiment made recently at the Shoreditch station for the Brentford Urban District Council. It was undertaken to test the possibility of burning road cleanings, sewage sludge and house refuse. The mixture consisted of one and one-half tons of drained road mud, one and one-half tons of pressed sludge, and six tons of dust-bin refuse, or nine tons in all. It was treated in the usual way, being dried on the hearth at the back of the furnace and brought forward by the rake. It was consumed in six hours and twenty minutes, or at the rate of seventeen tons per cell per twenty-four hours. The clinker was 24.8 per cent of the whole, which would indicate that the people of Brentford have some other use for old tins than throwing them in their dust-holes.

On the whole, as may be gathered from what is here said, there can be no doubt but that the Shoreditch destructors are capable of

burning all ordinary refuse that comes in from the neighborhood, and with a very little help from coal can supply heat to generate steam for the adjoining electric-supply station. — *Engineering.*

THE NILE DAM.



arduous series of investigations as to the possibility and wisdom of the construction of a great dam on the Nile for the purpose of converting arid desert into cultivated fields have been successfully concluded, says the London *Daily News*. Both Mr. John Aird, who has the contract for the gigantic work, and Sir Benjamin Baker, who will carry it out, are now on their way home from Egypt, and until their return all the facts cannot be made known. Meanwhile the following brief description of the scheme, the prolonged negotiations, surveys and expert inquiries, will make clear to our readers what a vast undertaking this will be. Shortly put, the most important part of the scheme is to build a large dam at Assouan, the first cataract of the Nile, which will be capable of holding in reserve for purposes of irrigation some thousand million cubic metres of water. Upon the hideous rocks which form the first cataract of the Nile the monster wall of ashlar granite will be built, having its sides pierced with openings for the passage of the waters of the Nile when that famous river is in full flood. In the autumn months the sluice-gates will be closed until the reservoir thus formed is full and ready to be distributed over the thirsty soil by means of a variety of channels. It is in the months of August and April that the water is most wanted for the corn, sugar, cotton and rice, and then the gates will be partly opened and the supply in the river, at those periods at its lowest level, complemented. By this means there should be a pretty even supply of water throughout the year. Some idea of the size of the works required to carry out this highly important scheme may be formed when we say that the length of the dam will be some six thousand feet. And we gather that, in order to give a passage to the Nile steamers, boats, dahabeahs, etc., a canal with numerous locks will be constructed on the left banks.

Having thus placed these few main facts before our readers, we will now go on to give a hasty sketch of the prolonged inquiries which have preceded what must now be regarded as their consummation: Commissioners were appointed to give their opinion upon the various plans which were submitted to them for the irrigation of this portion of Egypt. These were explained some years ago by the British Commissioner, Sir Benjamin Baker, himself, and there could be no better authority. Whatever difference of opinion they might have as to the engineering difficulties, the Commission was as one as to the necessity of a reservoir. The estimated direct ultimate annual return to the State was over three-quarters of a million sterling, and the increased value of the crops, it has been calculated, would result annually in a benefit ten times that amount to the cultivator. To illustrate the extent of the change, Sir Benjamin pointed out, on the authority of Mr. Foster, the Inspector-General of Irrigation for Lower Egypt, that in the small province of Giseh alone the area under summer crops would be increased from 5,000 to 60,000 acres, and as the average value of the summer crop is no less than £10 per acre, there would be a net increase of over half a million sterling in that little district alone.

Four projects were prepared by the Government engineer, says Sir Benjamin. The first examined by the Commission was Mr. Cope Whitehouse's hadi Rityan reservoir, which consisted in the conversion of a deep depression in the desert, discovered by him, into a vast lake of nearly three hundred square miles in area. However, as the length of the canal necessary to connect the lake with the Nile was great, and ran through doubtful soil, the Commissioners were unanimous in rejecting this scheme. And, quite apart from its terrible cost, it would not, even if effected, have met the requirements of all Egypt. A second scheme was that of a dam across the Nile Valley at Gebel Silsila, about fifty miles down stream of Philæ, that is, Assouan. At this point the rock was found to be inferior sandstone, with bands of clay, easily acted upon by water, and the Commissioners were unanimous in rejecting this scheme, on the grounds of insecurity alone, quite apart from other important objections, such as great depth of water and narrow width of river between the high banks. The third scheme was a dam at Kalabsha, about thirty miles from Philæ, where, again, though the quality of the rock was all that could be desired, the depth and width of the river were such as to render its construction—even when strengthened and otherwise modified by members of the Commission—absolutely impossible, on financial grounds alone, apart from engineering difficulty.

Such were the rejected schemes, and the reasons for their rejections, and the present, or what is known as the Philæ, plan, was ultimately adopted. We may now quote Sir Benjamin Baker's actual words, which appeared in an article he contributed to the *Nineteenth Century* so far back as 1894:—

"Nowhere else in the whole of the Nile Valley could be found such advantages of site, sound rock, numerous islands, a wide section, so that the action of the water issuing from the shoots would be minimized, and shallow water in which to work. In the designs as now approved, the openings through the dam for the discharge of the Nile water, which in times of excessive floods may amount to the enormous quantity of 14,000 tons per second, have been very much reduced in size and correspondingly increased in number, so that the

force of the issuing water may be more distributed; and, further, that the whole of the openings will be lined with cast-iron, one and a half inch thick, so that no stone can be torn out, or piece of masonry destroyed, by the constant impact of large volumes of water at high velocity. Again, the width of the base of the dam has been increased, so that the pressure on the solid granite masonry will be less than that on any of the great dams of the world. The security of the dam has thus been doubled, at an increased cost of about 25 per cent on the original estimate of £1,000,000."

We may now allude to the strong differences of opinion which existed between the French Commissioner and his other colleagues in the inquiry. The French engineers had a scheme of their own, namely, an open dam made of isolated narrow piers, with numerous sluices 16 feet wide, rising up to 80 feet high. Said the others, "if you ask people to live below a dam holding three million tons up to a height of 80 feet above their heads you are bound to make their safety your first consideration."

AN ARBITRAMENT.

HOTEL BRISTOL, COPLEY SQUARE,
BOSTON, MASS., March 28, 1898.

MR. JOHN T. HEALY,

Clerk of Joint Committee on Arbitration between the Mason Builders' Association and the Bricklayers' Unions of Boston and vicinity:—

Dear Sir,—Having been elected by your Committee to act as arbitrator of your differences during the year 1898, I named March the 16th instant as the date for hearing evidence and arguments concerning a matter on which the Committee had failed to agree.

On the appointed day I met the Joint Committee in Room 46 of the Master Builders' Building, No. 166 Devonshire St. Nine members of the Committee were present, four representing the Mason Builders and five representing the Bricklayers' Unions. One member of the Committee, a master-builder, was reported as being unavoidably absent.

The matter in dispute and the subject, therefore, for arbitration was a question of wages. The Committee having been called to order, it was shown that the Bricklayers' Unions had given notice six months before April 1, 1898, that they would ask for an advance of three cents per hour on the minimum wages then being paid—that is, an increase from the minimum of 42 cents per hour to a minimum of 45 cents per hour, the new rate of wages to go into effect April 1, 1898. The Master Builders did not complain of a surprise, the time given being deemed ample to complete old contracts and to make the requisite adjustments when undertaking operations for the present year.

During the session of three hours every member present was heard in turn and was not limited as to time. Both sides had full opportunity for rebuttal of evidence making against them. The hearing was harmonious throughout, and all the members of the Committee were animated with a spirit of intelligence and equity.

Esteeming it no little honor to have been unanimously chosen as arbitrator by your Committee, I have endeavored to justify their choice by a well-meditated and unbiased decision.

Many arguments and a mass of testimony were submitted, and the following facts were accepted as true or were found to be substantiated by evidence:

1. For the past ten years the minimum rate of wages for Boston bricklayers has been 42 cents per hour in a day of eight hours, while for the same period of years the minimum rate of wages has been 50 cents per hour in Washington, D. C., Omaha, Neb., Chicago, Ill., Peoria, Ill., and 45 cents in Holyoke, Mass. In New York the minimum rate has been 50 cents per hour for the last nine years. In St. Louis, Mo., the minimum rate per hour has been 55 cents for the last ten years.

Hence it appears that the advanced rate asked for by the Boston bricklayers, that is, a minimum rate of 45 cents per hour, is five cents less than the minimum rate in Washington, Omaha, Chicago, Peoria and New York, and ten cents less than the minimum paid in St. Louis.

2. The Boston bricklayers, now working for the minimum rate in Boston of 42 cents per hour, are as competent and industrious and as valuable to their employers as the bricklayers of other cities whose minimum rate of wages is 50 cents and 55 cents per hour.

It was indeed urged by the builders that a Chicago workman lays from 3,000 to 3,500 bricks a day, while a Boston bricklayer lays only from 800 to 1,400 bricks a day. But, on the other hand, it was in evidence that the class of work referred to is entirely different from the work done in Boston, and the method of doing said work is not such as is approved of in Boston. Hence the conditions are altogether dissimilar and no just conclusion can be drawn from the number of bricks laid.

3. According to Carroll D. Wright, in the Seventh Special Report of the Commissioner of Labor, dated 1894, the weekly average wages of bricklayers amount in New York to a little over \$15; in Philadelphia to \$19, in Chicago to \$17.19, at eight hours per day.

Carroll D. Wright does not report the average weekly wages of the Boston bricklayers, but, taking the accounts of six competent and industrious bricklayers of Boston for the whole year of 1896, and striking an average, it is found that at eight hours per day the average weekly wages of the Boston bricklayers for all the year round is \$9.98.

Thus the average weekly wage in Boston, reckoning all the year round, is \$5 less than in New York, \$9 less than in Philadelphia and \$7.21 less than in Chicago.

4. There was much discussion on both sides as to the cost of rent and food in Boston and in New York, and as to the distance of certain localities in Boston from the State-house, and in New York from the City-hall; but there was no evidence on which I could properly find that the living expenses are not as great in Boston as they are in other large cities of the United States, not excepting New York, nor that 45 cents in Boston will buy as much of the necessities of life as 50 cents in New York.

In the course of the hearing it was asked by one of the builders, "Why do not the Boston bricklayers go to other cities where they can get 50 cents per hour, rather than stay here and take less? And why do Boston men who have been making higher wages in other places return to this city and its lower wages?" The implied inference was that the money they make here is worth all the money they can make elsewhere, and that 42 cents goes as far in Boston as 50 cents and 55 cents in other large cities.

To this it was answered that a Boston bricklayer may, of his own accord, forego much money for the sake of living in his native Boston with his wife and children, and relatives, friends and acquaintances. His increased salary abroad cannot purchase home comforts and social pleasures which one enjoys where he is most acquainted. So he stays in Boston, or returns to Boston, preferring to lose money rather than to give up the attractions of his native city. And, moreover, no man should be forced by low wages to exile himself.

On the part of the bricklayers there was some sentiment indulged in as to the right of a mechanic to the means of prospering and rising in the world.

Figures were given to show that bricklayers in New South Wales, New Zealand, Victoria and Ontario receive much higher wages than are paid in Boston; and a high authority was cited as maintaining that "it accords better with the American spirit and American policy that American workmen should have higher wages and fewer hours than those of any other nation." While the above sentiment should win the heartiest approval from every American, it cannot enter as an element into any decision of an arbitrator in a question of wages, since the sentiment has nothing to do with commutative justice.

5. There was evidence to show that the business outlook of Boston is not one of depression, but rather of prosperity; that city real-estate is steadily increasing in value; that Boston's percentage of the nation's foreign commerce was never greater than last year and that it is constantly growing. Increasing building operations follow increasing commerce. The prospect of a larger business in building should favor the increase in wages asked for.

Forming my judgment upon the above facts and the inferences which may fairly be drawn from them, I am convinced that the contention of the bricklayers for an increase of three cents per hour in the minimum rate of wages is reasonable and just, and hence I decide that the increase should be granted.

EDWARD CONNOLLY, Arbitrator.



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

TOMB OF BENJAMIN WARDER, ROCK CREEK CEMETERY, WASHINGTON, D. C. MESSRS. McKIM, MEAD & WHITE, ARCHITECTS, NEW YORK, N. Y.

[Gelatin Print, issued with the International and Imperial Editions only.]

CARMELITE CONVENT, BOSTON, MASS. MR. TIMOTHY WALSH, ARCHITECT, BOSTON, MASS.

CLUB-HOUSE OF THE SOUTH BOSTON YACHT CLUB, SOUTH BOSTON, MASS. MESSRS. MAGINNIS, WALSH & SULLIVAN, ARCHITECTS, BOSTON, MASS.

GATE-LODGE AND CHAPEL FOR MOUNT HOPE CEMETERY, BOSTON, MASS. MESSRS. MAGINNIS, WALSH & SULLIVAN, ARCHITECTS, BOSTON, MASS.

CLUB-HOUSE FOR THE BOSTON YACHT CLUB, SOUTH BOSTON, MASS. MR. A. C. FERNALD, ARCHITECT, BOSTON, MASS.

ACUTE PATIENTS' WARD: MASS. HOSPITAL FOR THE INSANE, WESTBOROUGH, MASS. MESSRS. KENDALL, TAYLOR & STEVENS, ARCHITECTS, BOSTON, MASS.

COMPETITIVE DESIGN FOR A TWENTY-ROOM SCHOOL-HOUSE FOR SPRINGFIELD, MASS. MR. G. WOOD TAYLOR, ARCHITECT, SPRINGFIELD, MASS.

THE conditions called for a building to cost, exclusive of the heating and ventilation, not over \$60,000. The first and second floors were to provide eight class-rooms each, and the third floor, in addition to manual-training and sewing rooms, was to contain a large assembly-hall.

THE COLUMBIAN LAW BUILDING, WASHINGTON, D. C. MR. JAMES G. HILL, ARCHITECT, WASHINGTON, D. C.

This office-building is to be erected for the Columbian University, in this city. It is to be of steel-skeleton construction, with floor arches and partitions of terra-cotta. The exterior facing is of Indiana limestone, light brick and terra-cotta. Work is under contract and building will cost \$95,000.

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

FACADE OF THE CHURCH DE SAINT PÈRE, AUXERRE, FRANCE.

This plate is copied from Baron Taylor's "*Voyages pittoresques*."

Bronze Bas-relief of Mantegna: Basilica of S. Andrea, Mantua, Italy. Sperandio Miglori, Sculptor.

[Additional Illustrations in the International Edition.]

THE MARIENKIRCHE, ROSTOCK, MECKLENBURG-SCHWERIN.

[Gelatin Print.]

This old church dates its origin from the first half of the thirteenth century, its first mention, in the archives of the town of Rostock, being in 1232. Of this early structure nothing remains save the lower portion of the tower, built in the Early Gothic style. The choir, terminating in a semi-octagonal apse, and surrounded by a cluster of five chapels, suggests French models, and was probably erected about the end of the thirteenth century. The latest reconstruction, which gave the edifice its present shape, was begun in 1398, dragging along, with various interruptions, until 1480. As its architect we have to regard the Rostock master, Johann Rumeschotel, who conducted the building operations until 1408, when he was called to Riga, to erect there the similarly planned church of St. Peter.

As regards the towers of the west front, it is probable that a high central tower, flanked by two smaller turrets, was originally planned, or else two tall side-towers with a decorative gable between. However, neither of these supposed plans was carried out. The huge mass, which overtops the west front, can only be regarded as a makeshift. It makes a unit of the entire front, terminating in a pointed belfry of uninteresting outline, in Baroque forms. On reconstructing the edifice, the architect erected the central portion wholly anew, adopting a cruciform plan of grand proportions. The clear height of the nave, having two aisles of equal height at its sides, as well as of the transept and the choir, amounts to over 98 feet to the vaulting. The tall windows, running almost the full height of the north and south transepts, are proportionately high.

The material of the building, as in so many churches of that period in Northern Germany, is brick of excellent quality and workmanship. Layers of green, yellow and brown glazed brick alternate with those of common brick, giving the exterior, in its flat and barren simplicity, a peculiarly warm and soft tone of coloring, which harmonizes well with the greenish hue of the patina of the copper-sheeted roof.

As a curiosity, it may be stated that the main entrances here, as at St. Stephen's Cathedral, Vienna, are located at the north and south ends of the transept.

CHURCH AND TOWER, CRAVANT, FRANCE.

This church, which has three XV-century naves, also has a very rich Renaissance choir, while eleven chapels, remarkable for their ornamental character, radiate from the sanctuary. A square XVI-century bell-tower rises at the left of the choir.

INTERIOR OF THE CHURCH AT CRAVANT, FRANCE.

ENTRANCE TO THE OLD CHÂTEAU AT TANLAY, FRANCE.

This exquisite little building, called "le petit château," serves as a species of gate-lodge to the larger château once the home of the Coligny family. The small building was built (but not finished) in 1610.

XVI-CENTURY HOUSE, CHATILLON, FRANCE.

This and the preceding plates are copied from Baron Taylor's "*Voyages pittoresques*."

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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.]

"PREDETERMINATION IN DESIGN."

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs, — I am indebted to Professor Hamlin for his courteous reply to my inquiry, although his explanation does not remove the ground of my criticism. I gather that he means that the operation of design consists in determining in the mind certain arrangements of form or color and then executing these "predetermined" arrangements. But even this is not a satisfactory definition, for it does not accord with experience. Designs are not arrived at by thinking but by experiment, involving the use of materials. The process of design from the first conscious operations of the mind to the completed work in its material form is not separable into two parts, distinct in time, as the word "predetermined" implies. It is essentially a single process, in which the subjective and material factors act and react upon each other.

It occurs to me, however, that another thought may have been lurking in Mr. Hamlin's brain which can be brought out by simply adding another word to his definition as it now stands, and slightly modifying an existing word. If we insert the word *indefinitely* before the word *predetermined*, his definition will read: "Decorative design is the composition or arrangement of form or color into definite patterns and representations *indefinitely* predetermined ('preconceived' is a better word) in the mind of the designer." This implies that decorative design takes rank as such in proportion as it progresses from the indefinite to the definite, the incoherent to the coherent, etc. This explanation takes in the Maya bird.

EARNEST INQUIRER.

NOTES AND CLIPPINGS

A FOUNTAIN FROM MACMONNIES. — A beautiful bronze fountain has been presented by Frederick Macmonnies, the sculptor, to the Park Department, to be placed in the Vale of Cashmere, in Prospect Park. It is now in storage awaiting Commissioner Brown's acceptance. Mr. Macmonnies desires that it shall be shown at the spring exhibition of the Sculptors' League, which will take place in May. The fountain represents a small boy paddling in a pond filled with reeds and rushes. He is hugging to his breast a duck which he has caught, and about his feet several ducklings are paddling around, trying vainly to get at their mother. Water rushes from the mouths of the duck and her brood. — *N. Y. Times*.

A SWEDISH RAILWAY-STATION COMPETITION. — The royal administration of the Swedish street-railways has invited American civil engineers to take part in the competition for designs for the arrangement of new railroad-stations, junctions, etc., for the city of Stockholm. The first prize is to be 12,000 Swedish crowns (about \$3,230), the second 8,000 Swedish crowns (about \$2,150), and the third 4,000 Swedish crowns (about \$1,075). The time for competition will expire at noon August 31, 1898. Particulars concerning the nature of the work will be furnished by the Swedish-Norwegian legation, 2011 Q Street, Washington, D. C., or by the vice-consul of Sweden and Norway, August Peterson, LeDroit Building, corner of F and Eighth Streets, Washington, D. C. Security to the amount of \$13.50 for the use of the drawings in this competition is required, but this will be refunded when the drawings are returned. — *Boston Herald*.

NEW STATUES IN BERLIN. — The architectural severity of Berlin is increased by the beautiful Thiergarten, which is one of the most pleasing plantations in Europe. It is intersected by several roads, the widest and most important being the Siegesallee, running north and south, which leads to the Königsplatz and Sieges säule. The Emperor of Germany in 1895 decided that along the Siegesallee marble statues should be placed of the Margraves of Brandenburg and kings of Prussia, beginning with Albrecht the Bear, who lived in the twelfth century, and ending with the Emperor and King William I. Although the princes are generally treated as more than mortals in Prussia, yet Rauch around his statue of Frederick the Great was allowed to introduce figures not only of the Prussian generals but of some of the civilians who were subjects of the king. The new series of princes will also be accompanied by busts of the more prominent soldiers and statesmen of the different reigns. On Tuesday three of the thirty groups were unveiled. The figure of Albrecht the Bear not being complete, the ceremony related to the second, third and fourth of the series, viz. Otto I by Herr Max Unger, Otto II by Herr Uphus, and Albrecht II by Herr Boese. Each figure of a ruler stands on a pedestal within a semicircular enclosure of white marble. The floor is mosaic. At the back are the busts. The Emperor, it is understood, has taken much interest in the models, and they may to a great extent be considered as his inspiration. When complete the Siegesallee will present a sort of epitome of Prussian history. — *The Architect*.

"KEEP OFF THE GRASS" ABROAD. — German pleasure-grounds and open spaces are not unfrequently protected by a notice to this effect: "The gardens and walks are commended to the protection of the Tit. Pub." And when the untravelled tourist asks what the Tit. Pub. means, he finds it signifies the Titled Public. He is impressed because he imagines that titles must be very numerous in the district, and he sees the national aristocracy in a new light as the protectors of the parks and pleasure-grounds. Hereafter he is disappointed to learn that the word is only due to official politeness. The brutal Englishman says, "Travellers are requested"; the polite Frenchman says, "Mistress the travellers are prayed"; the German official, who is polite (on paper), writes, "The titled public are warned," and woe betide the titled public if they neglect the warning. — *Pull Mall Gazette*.

THE LATE AUBREY BEARDSLEY. — Of the many comments in the English press on the late Aubrey Beardsley, this passage, from the article of the *London Daily News*, is perhaps best worth citing. The real truth probably is that a morbid imagination was his birth-mark, and that the taste of the age, or of that part of the age to which he belonged, was, for a moment, favorable to the development of it. His curious portrait of himself as an emaciated sleeper in a colossal bed of state bears a motto of which it is impossible to exaggerate the significance. Monstrosities fascinated him, and it was his glory to show that he could find them just as easily in London town as in the wilds. In one sense, there was nothing new in him at all. He was new to England, but he had a long line of progenitors in French fiction, if not in French art. Huysmans, who has just gone into the church (as though to escape the lunatic asylum), was one of his innumerable colleagues in the study of the morbid anatomy of the soul. From Baudelaire downwards, France has never failed in the succession of Beardsleys of the pen, who love the abnormal for its own sake, and who do not care to look at a flower till it carries with it, in form, or even in odor, some suggestion of disease. The new variety of the type in Aubrey Beardsley was that he belonged to a society in which such people are still regarded with curiosity, and, moreover, that he worked in a new medium. He was of the great fellowship of Catulle Mendès, of Verlaine, of Maurice Barrès, whose heroine liked "to plunge her feet into warm mud"; of Gauthier, with his fine sense of the "mottled greenness of decomposition."

ARCHITECTURAL FELLOWSHIPS AT COLUMBIA UNIVERSITY. — The Fifth Competition for the Columbia Fellowship in Architecture established by the Trustees in 1886 in recognition of the liberality to this Department of Mr. Frederick Augustus Schermerhorn will be held at the School of Architecture in April and May, 1898. This Fellowship, of the value of \$1,300, is open to all graduates of the Department of Architecture who are less than thirty years of age. The successful candidate is required to devote the money received by him to foreign travel and study in accordance with plans prepared by himself and approved by the Professor of Architecture and the President of the University, and is required on his return to present a written report, and to exhibit at the School of Architecture the drawings he has made. This Fellowship was first awarded, in 1890, to Mr. Arthur Alexander Stoughton, of the class of 1888; in 1892 to Mr. Horace Borchsenius Mann, of the class of 1890; in 1894 to Mr. Seth Justin Temple, of the class of 1892; and in 1896 to Mr. William Kinne Fellows, of the class of 1894. The fourth award of the Fellowship in Architecture, established by the liberality of Mr. Charles F. McKim, was made last spring, by a jury consisting of Mr. Albert L. Brockway, Mr. Thomas Hastings, Mr. George L. Heins and Messrs. Little, Nye, Stoughton, Kohn, Wallace, Bossange and Pilcher. The Fellowship, of the value of two thousand dollars, was awarded to Mr. Harry Allan Jacobs, of the class of 1894. Honorable Mention was made of the work of Mr. B. W. Morris, Jr., of the class of 1894; of Mr. H. B. Mulliken, of the class of 1895, and of Mr. W. O. Raymond, of the class of 1896. There were seven-teen competitors.

THE TRUMPETS OF CRACOW. — "There is a curious custom extant in Cracow, Poland," said a lady recently, "of sounding trumpets from one of the church towers of that city, and for more than three centuries the trumpets have been sounded every day from the old church tower, and will be, so long as the church shall stand. The custom was established about in the middle of the sixteenth century, when a rich woman, who lived in her home in Cracow, made a vow to the Mother of Sorrows that if her husband and sons came back safely from the war she would proclaim the glory of the Virgin Mary on the four winds of heaven forever after. When at last her beloved ones returned to her, she remembered her vow, and deposited with the authorities a large sum of money, the interest to be devoted to paying for the services of four trumpeters. Every hour of the day one of them blows a fanfare from each of the four windows of the steeple, and at 5 o'clock in the morning the four trumpeters play a choral together. The trumpeters are trained for this service generation after generation. They divide the day into watches, each one of the men staying in the steeple a certain number of hours, as its great height involves both time and labor in going up and down. I think," she continued, "that I saw thousands of pigeons on the roof and steeple of the old church; they are specially cared for, even the farmers, who come in to market from the surrounding country, always drop a handful of corn for the 'pigeons of the Virgin Mary,' as they are called by the people. No matter where I went while in Cracow, I would drift back to the old church to listen to the trumpets. I used to go at 5 o'clock in the morning, and the sight of the pigeons flying around the steeple, together with the sound of the music so high in the air, was strangely solemn and wondrously beautiful. It is a peculiar custom that has spoken for more than three centuries of the gratitude of a woman's loving and faithful heart. Generation after generation has come and gone, and yet still the trumpets send forth their message of praise and glory and the 'pigeons of the Virgin Mary' circle about the tower of the old church in Cracow." — *N. Y. Tribune*.

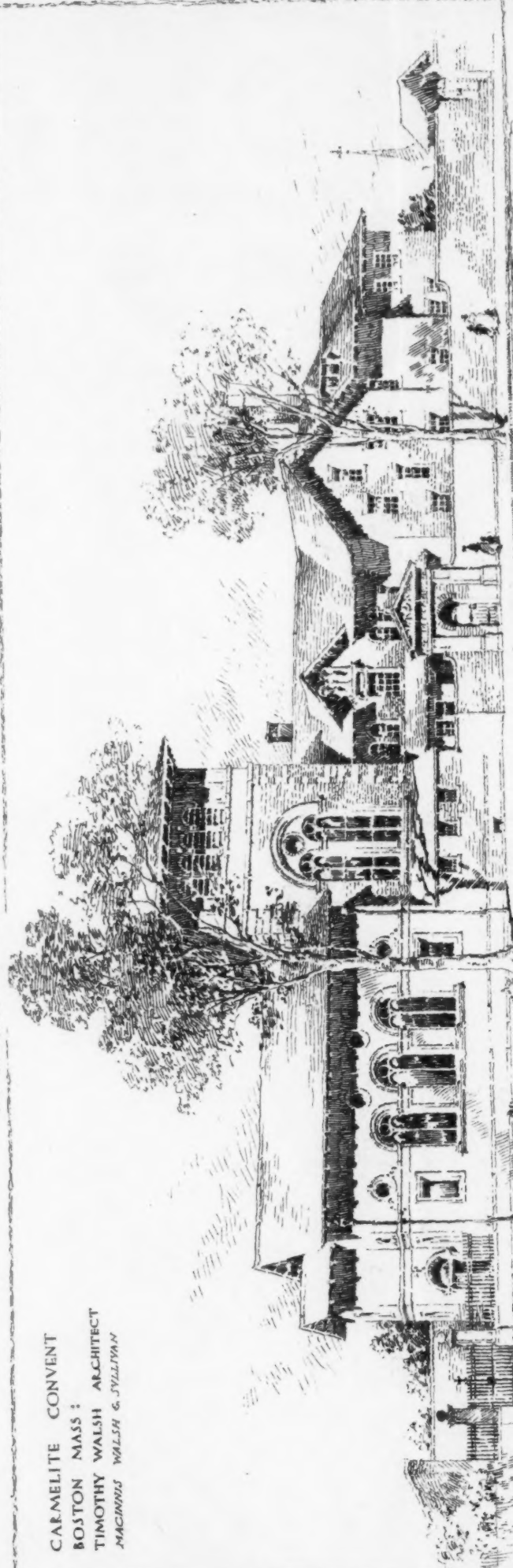


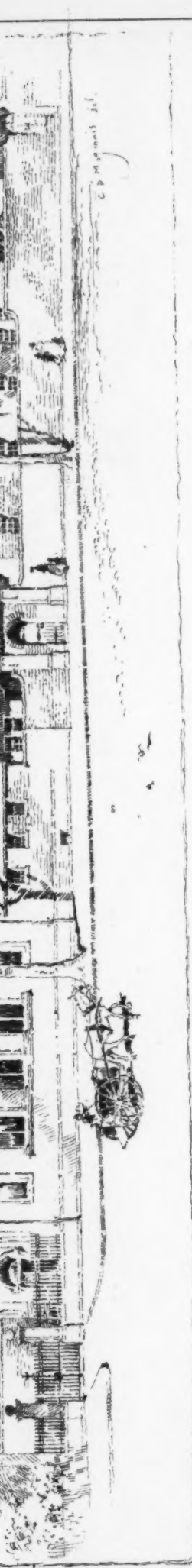
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SOUTH BOSTON YACHT CLUB HOUSE

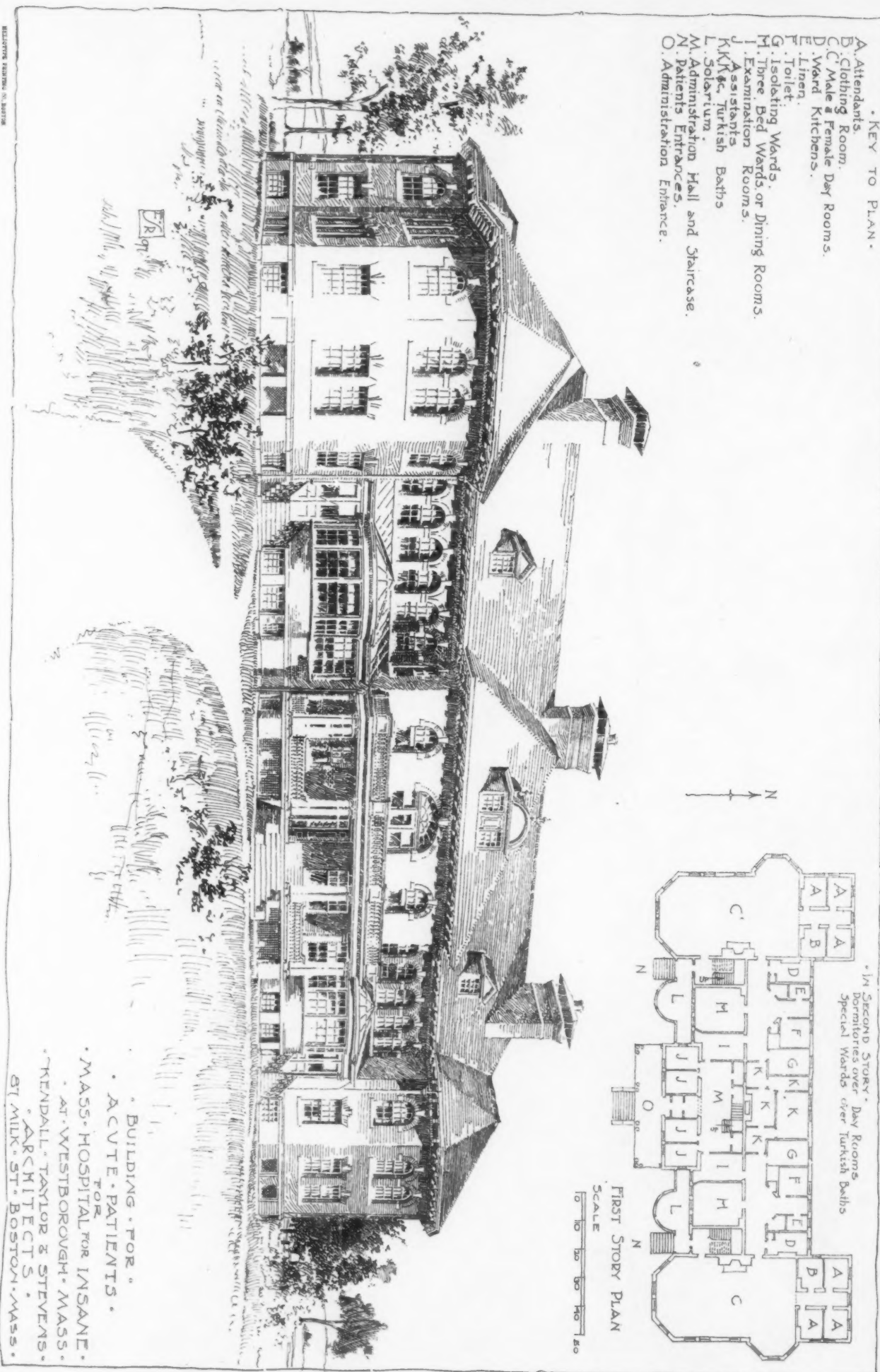
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- KEY TO PLAN.
- A. Attendants.
 - B. Clothing Room.
 - C. Male & Female Day Rooms.
 - D. Ward Kitchens.
 - E. Linen.
 - F. Toilet.
 - G. Isolating Wards.
 - H. Three Bed Wards, or Dining Rooms.
 - I. Examination Rooms.
 - J. Assistants.
 - K. Turkish Baths.
 - L. Solarium.
 - M. Administration Hall and Staircase.
 - N. Patients Entrances.
 - O. Administration Entrance.



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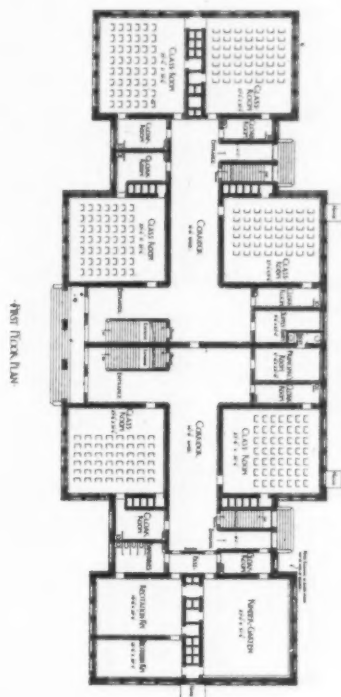
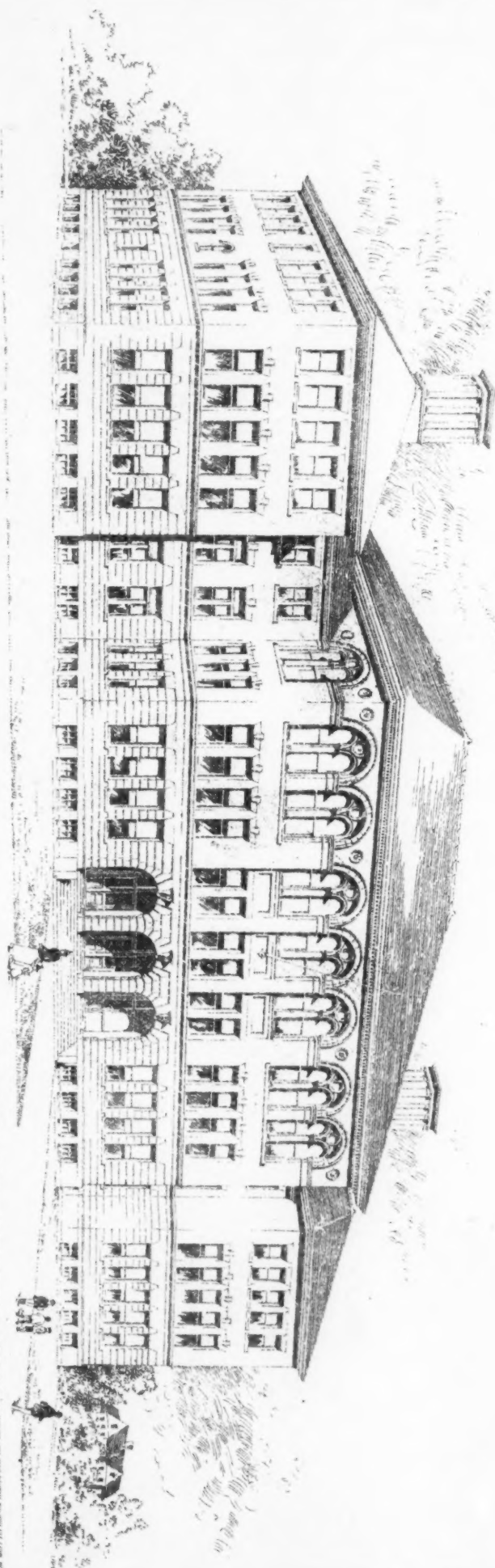
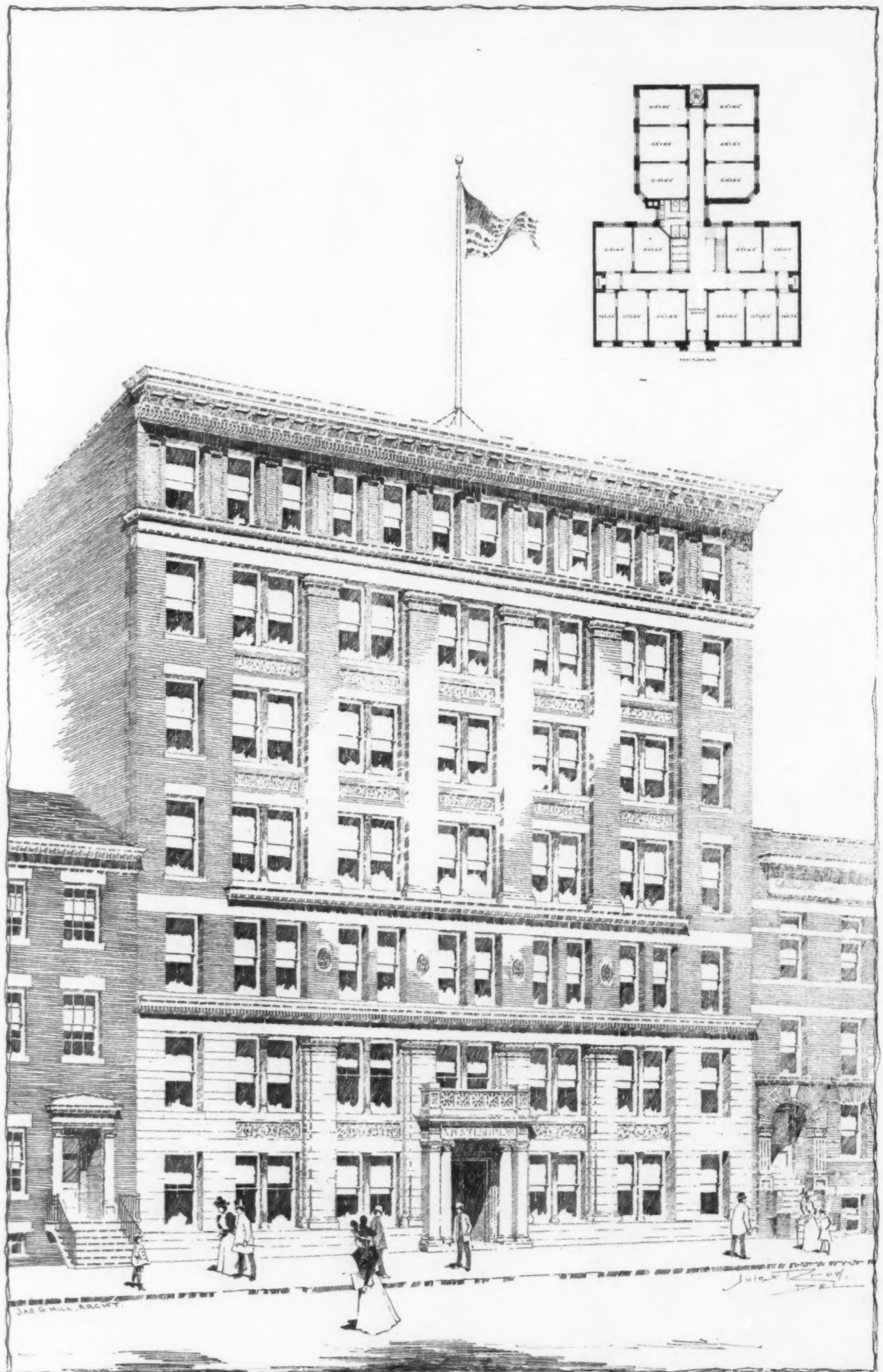


FIG. 1. FLOOR PLAN.

COMPETITIVE DESIGN,
FOR A TWENTY ROOM SCHOOL-HOUSE,
AT SPRINGFIELD, MASS.,
G. WOOD TAYLOR, ARCHITECT,
SPRINGFIELD, MASS.



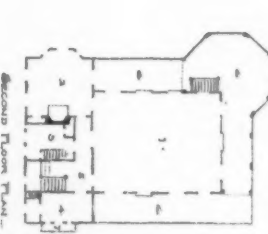
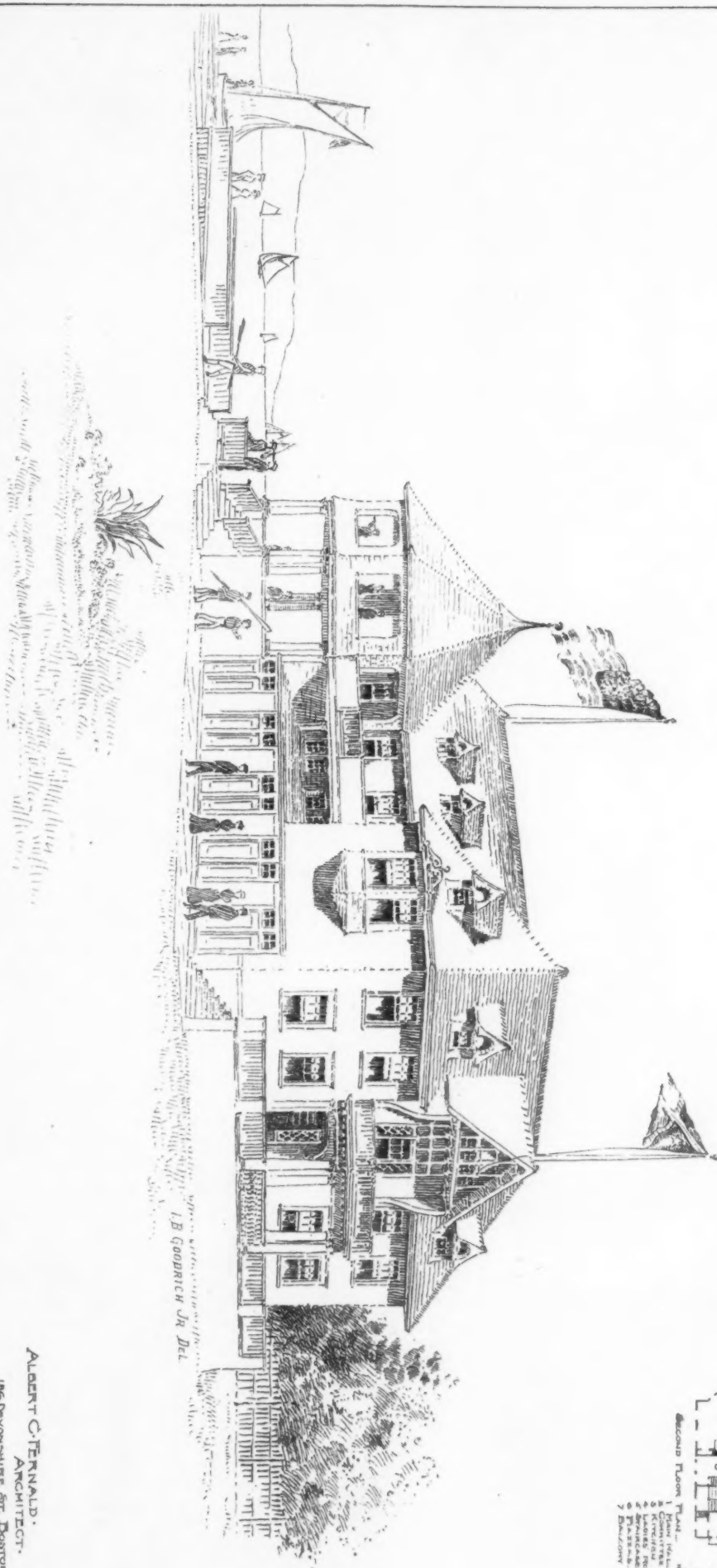


COLUMBIAN LAW BUILDING, WASHINGTON, D. C.

JAMES G. HILL, ARCHITECT.

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CLUB HOUSE AT
CITY POINT, 200 BOSTON, MASS.
FOR
BOSTON YACHT CLUB.
—1890—



- 1. Club House
- 2. Committee Room
- 3. Kitchen
- 4. Dining Room
- 5. Billiard Room
- 6. Reading Room
- 7. Reception

ALBERT C. FERNALD,
ARCHITECT,
106 DEVONSHIRE ST., BOSTON.