THE AMERICAN ARCHITECT AND BUILDING NEWS

VOL. LXXVI SATURDAY, MAY 3, 1902 No. 1375

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THE Boston newspapers have joined in a chorus of laudation of the recent report of the Committee on School-houses, which strongly advises that the school-buildings erected for the city hereafter should be rigorously plain, outside and inside, using only the simplest materials, put together in the simplest way which will serve the purpose. It is true that the city of Boston needs a large number of new school-houses, and has only a small amount of money available for paying for them; and it is also true that certain school-houses have, in the past, been built and altered at an extravagant expense; but even these considerations do not quite reconcile us to the idea of building barns for young and impressible children to spend the most impressible years of their lives in. A great deal is said now about the extravagant cost of modern city school-houses, and the architects are indirectly blamed for this, as if it was to satisfy their tastes or whims that so much money was spent, but the fact is that nearly all the increased expense of modern school-houses over those of twenty years ago is incurred to carry out the rules of sanitation which are now enforced either by law or by an imperious public opinion. Where, a quarter of a century ago, a hole in the ceiling of a school-room to let the hot, and, presumably, foul air into the roof-space, with a couple of Emerson ventilators to discharge it thence into the atmosphere, were considered ample ventilation, the law of Massachusetts now demands that thirty cubic feet of fresh warm air per minute shall be supplied to every pupil in every public school building, and it is not the fault of the architects that, in order to meet this requirement, which is rigorously enforced by frequent inspections with anemometers and thermometers, steam-boilers, engines, fans, tempering coils, indirect stacks, valves and controlling devices of the most complicated and costly character are necessary, in place of the simple furnace, drawing its air-supply from the rooms, or, at least, from the hall, which sufficed two decades ago. The newspapers comment with wonder on the fact that the janitor service in the present Boston schools costs nearly ten times as much as it did twenty-five years ago; but where the janitor of 1875 simply put a few shovelfuls of coal on his furnace at night, and shook out the ashes in the morning, and swept the rooms once or twice a week, the modern janitor must either have passed an examination and obtained a certificate, as a competent steam-engineer, or must employ a licensed engineer to attend to the fans and engine, and a fireman to feed the boiler, while he makes his hourly rounds through all the rooms in the building, to assure himself that the thermometer in each is neither too high nor too low; that the inlet and outlet registers are open to the requisite extent; that the mixing-valves are working efficiently, and that inlets are so screened as to prevent undue draughts. If he neglects any of these duties, an unexpected visit of the inspectors may result in the loss of his position; and with these, the varying regulation of the water-supply to the plumbing-fixtures, which is now usually placed in the janitor's hands, and the necessary supervision of the sweeping and dusting of the building, the janitor of the modern school-house has his hands tolerably full, without being expected to use the coal-shovel, the oiler, the broom, or the dust-pan, himself.

WE should be very sorry to see any reduction made in these expenses. Large as is the sum paid out annually for the maintenance of our city school-houses, it is returned to the community tenfold in the improved health, both physical and moral, of the school-children of the present day over that of the children of the last generation; and an increased outlay, as, for instance, for baths in school-houses in poor districts, is, as the experience of Boston has shown, richly repaid. In the same way, we would like, notwithstanding the opinion of the Committee on School-houses, to see all new school-buildings designed with at least a little regard to the æsthetic advantage of those who are to occupy them. A little well-designed terra-cotta ornament about the entrance, or some good plaster decoration in the principal rooms, does not add much to the cost of a modern school-building, while the aggregate influence which they exert in arresting the attention of the thousands of children who see them every day, and in giving them perhaps the only glimpse of the higher life that some of them will ever know, is of incalculable value. To us there has always been something touching in the devotion with which the poor, overworked teachers in the public schools manage to find time to care for the plants and flowers which almost universally adorn the windows of class-rooms. It is evident that the teachers feel, perhaps almost unconsciously, the effect of these objects of natural beauty in softening the character of children, and, in relieving, for themselves as well as for their pupils, the depressing monotony of school duties; and the fact that the practice has become so widely spread among city school-teachers, who are often obliged to make a very appreciable sacrifice of their hard-earned money, as well as of time, to keep it up, shows how important they find its effect to be. It seems to us that this indication, like everything else in relation to school-houses which comes from the intelligent and observant persons who spend their lives in the effort to elevate the character of children, ought not to be neglected, and that the school authorities of Boston, who have provided a degree of security and healthfulness in their school-buildings unequalled, perhaps, anywhere else in the world, should recognize also the importance of developing the higher faculties of the young by the resources which only beauty, natural or artistic, can afford. A great deal has been done in Boston, as well as in other Massachusetts cities, by private generosity, in furnishing new school-houses with pictures, casts and other objects of art, to the very great advantage of the pupils. The public is ready to do much more in the same direction, and it is a pity to discourage it by a refusal to recognize art in the school-buildings. Nobody can put much enthusiasm into decorating a barn with statues, and even a modest sacrifice to art in the designing of new buildings, by encouraging people interested to do something to increase their artistic effect, would be well repaid.

THROUGH the generosity of Mr. and Mrs. Nelson Robinson, of New York, a travelling-fellowship in architecture has been established in Harvard University, of the value of one thousand dollars, to be awarded annually to graduates of the School of Architecture who have completed their course with distinction, or who have completed with distinction a post-graduate course of not less than one year. Selection is made from among the candidates by competitive examination, and candidates cease to be eligible on the completion of their twenty-sixth year. The winner of the award is required to spend a year in the study of architecture in Europe, under the direction of the authorities of the Department. The Austin Scholarship, maintained with substantially the same object for some years past, out of the income of the bequest of the late Edward Austin, has been modified, so that, instead of supporting a student in foreign travel, it is now to be devoted to the establishment of three ordinary scholarships in the Architectural Department, each with an income of three hundred dollars, for the assistance of undergraduates in the Department. It will be seen that, by limiting the eligible age to twenty-six years, rather younger material will be drawn upon for the Robinson scholarship than for most of the American travelling-scholarships, which set the limit of age, as a rule, at thirty years, following the limitation of the Paris School of Fine-Arts in relation to candidates for the Prize of Rome. Few men win the Prize of Rome before they have very nearly

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reached the age-limit, and American travelling-scholarships usually fall to men of a certain maturity, so that the result of sending out younger students from the Harvard School should be watched with interest. It has seemed to us for some years, judging by the designs shown at the annual exhibitions, that the work of the Harvard men often showed, at its best, a finer artistic sense than that exhibited by any other American school of architecture within our knowledge. It is very possible that this comes, at least in part, from the comparative freedom of the Harvard School from the rather overbearing Beaux-Arts influence which is sometimes found elsewhere; and it is also probable that the original material, selected from a community so old in culture and æsthetic sense as that which Harvard University represents is, taken as whole, of a finer fibre than that which is elsewhere drawn upon; but, however all this may be, the experiment of sending young men, whose individuality of talent has been guarded with special care, to study the masterpieces of architectural art at a particularly impressible age, is a most important one. Undoubtedly, many of the Robinson scholars will fall into the usual habits of ignorant criticism of everything that has not the stamp of French or Italian Renaissance, but there will certainly be some who, like the ablest of the French students, are capable of understanding the beauties of Amiens, or Chartres, or Arles, as well as those of the Louvre and the Farnese Palace; and it is on these that the hope of American architecture depends. We saw, not long ago, and, strangely enough, in a report of a lecture by an Englishman, the advice to young architects to begin their designs by considering what sentiment they wished to express in them. This was the first time, so far as we can remember, since the days of Garbutt, that we ever saw architects reminded, as a principle for practical application, that architecture is an art of expression. In the work of the Harvard School, we have seen, as we thought, indications that this principle was not forgotten there; and, if a curriculum which recognizes such a view of the art can be supplemented by an intelligent and well-directed study of the means of architectural expression employed by the greatest artists in the world, the influence of the new scholarship, both on the University and the community in general, will be very great.

PROFESSOR TROWBRIDGE, of the College of Architecture of Cornell University, has resigned his position, his resignation to take effect at the end of the academic year, when he will enter upon the active practice of his profession in New York. Professor Trowbridge came to this country with high honors from the Paris School of Fine-Arts, including the diploma of the French Government, which comparatively few architects, even in France, obtain; and it will be difficult to fill his place at Cornell. Meanwhile, his friends, and the whole profession, which has taken no small pride in his success, will wish him continued good fortune in his new field.

THE plans for remodelling the White House, at Washington, by adding curved wings and other features, seem, happily, to be laid at rest for the present, and some simple changes are to be made in the interior, so as to obtain more family rooms, while the President's business-offices are to be removed to a temporary structure, which will be built south of the White House, near the State Department. The cost of the changes will, it is estimated, not be more than one hundred and fifty thousand dollars, including such decoration as may be necessary, which, by the President's desire, is to be in the simple style prevailing in this country at the period of the original construction of the building. The whole scheme seems to be straightforward and practicable, and will commend itself to those who have been dreading for two or three years the consummation of the plan for making the White House ridiculous by appending to it the curved colonnades, with intercolumniations nearly equal to the height of the shafts, and entablatures held up by complicated framing, which, as the newspapers informed us, had been decided upon.

THE discussion over the competition for the Grant monument, in Washington, while it does no discredit to any one concerned, shows the difficulties which usually attend the proceedings of people who do not know their own mind, or are afraid to express a decided opinion. Without exception, so far as we know, the sculptors who have had anything to say on the subject have shown the utmost good feeling and sense of honor, and it seems to have been the Commission, which, by its hesitation in giving a frank and decisive award, has given good reason for complaint, not only to the two sculptors most interested, but to their fellows, who are earnest in their desire to see artistic competitions in this country put on a respectable basis, and are disappointed that this one, from which so much was expected, should have resulted only in a dubious award, which, like faint praise, is rather an injury than a benefit to the people on whom it is bestowed. The Commission say, in explanation, that, while the model of Mr. Shrady was "brilliant," they did not feel sure of his ability to execute a finished statue with the necessary "nobility and reserved power," and, at the same time, that Mr. Niehaus's work was of such a high order that they thought he ought to have another trial. All this is quite comprehensible, and, indeed, is rather creditable to the conscientiousness of the committee of award; but it may be observed that the terms of competition prepared by the Commission, and followed by the competitors, certainly implied that the models required would be sufficient to demonstrate to the jury the "nobility and reserved power" of the artist; or, at least, to give sufficient indication of the possession of these qualities by the artist to justify the Commission in making the award without reserve. If the Commission wished to be able to institute a subsequent test of "nobility and reserved power" between the competitors, it should have announced a double competition, in the usual form, one for sketches, and a second for large models; but, not having done so, it should have kept to its contract with scrupulous fidelity. We do not fear, as some of the sculptors do, that the disappointments connected with this competition will prevent the submission of similar competitions in future to expert juries; but we regret to see a young and talented sculptor deprived of a portion of the credit which he has fairly won, by the apparent reluctance of the jury to believe in their own award, and we regret equally that Mr. Niehaus, a man whose talent and character are honored throughout the country, should have been placed, entirely against his will, in the position of one endeavoring, or even consenting, to subtract, for his own benefit, from the credit of a preferred competitor.

THE Twenty-sixth Annual Report of the Trustees of the Boston Museum of Fine-Arts is a particularly interesting one. In the first place, the Report gives assurance of the completion of the purchase, by the Museum, of its splendid lot on the Fenway, containing nearly twelve acres of land, surrounded on all sides by parks or streets, none of which is less than eighty feet wide between the building-lines. As it is generally understood that the Museum has sold the lot which it now occupies for nearly two and one-half million dollars, it seems to be sure of suitable accommodations for the future. It ought, however, to be remembered that two millions and a half is by no means an inexhaustible sum for a public building intended for the fine-arts. The Trustees have been wise enough to secure a tract of ground large enough for their needs for many years to come; but the payment for this tract will absorb a considerable portion of the price of the old lot; and, with what remains, it will be possible to complete a building which will contain the present collections, but without much room to spare; and, for future enlargements of the collections, additional buildings will undoubtedly be necessary. Meanwhile, the collections belonging to the Museum seem to be growing at a rate which is surprising, in view of the great and constantly increasing difficulty of obtaining genuine antiquities, or works of art by noted masters. Within the past eight years, the Museum has expended, out of its own funds, more than six hundred thousand dollars in purchasing objects of art which, in all probability, could never have been secured later; and its acquisitions from donations and bequests, although not so easily measured in money value, are probably not less important. It is gratifying to note an apparent increase in the popular favor with which the Museum is regarded, as shown both in the number of paid admissions, and in the amount of donations and subscriptions. The total number of admissions in 1901 fell a little short of that of 1900, owing, undoubtedly, to the progressive transformation of the portion of the city in which the Museum is situated from a residential to a business quarter. With the removal of the Museum to the Fenway, five or six years hence, the number of free admissions is likely to diminish, as the Fenway is, as yet, rather removed from the range of sightseers; but it is almost in the centre of the residential portion of the Metropolitan district, and should attract a much larger number than ever of serious students, who will find the conditions of work in the quiet grounds fronting the Park far more agreeable than in the noisy and crowded Copley Square, with its streams of electric-cars, its hotels, railroad-stations, concert-rooms and shops.

THE AMERICAN VIGNOLA.[1] — VII.

PART I. — THE FIVE ORDERS.

DRAWING.

GENERAL Proportions. — Since the relative size of all the parts, in Vignola's Orders, is fixed, any of them can be drawn out in accordance with these rules, if a single dimension is determined. The width of a Dentil or the length of a Modillion suffices to determine everything else. But the data generally given are either the lower Diameter of a Column, the height of a Column, or the whole height of the Order, with or without a Pedestal.

I. If the lower Diameter is given, the procedure is as follows (90): Divide it in two, draw the axis of the Column, and then divide each half into three equal parts. This gives the scale of sixths. Divide in two the two outer sixths. This gives the upper Diameter of the shaft, which is five-sixths. Lay off upon the axis the height of the Column, by Diameters (7, 8, 9 or 10), and of the Entablature, which is one-fourth the height of the Column. Mark the height of the Base, half a Diameter, or three-sixths, and then that of the Capital, two, three or seven sixths. Divide the total height of the Entablature into 7, 8, 18 or 10 equal parts, according as it is Tuscan, Doric, Ionic or Corinthian, or use halves, quarters or eighths of a Diameter.

Mark, then, the heights of the Architrave, Frieze and Cornice, drawing horizontal lines through the points of division. Then carry up vertically the outer lines of both the upper and the lower Diameters of the Shaft, drawing from the point where the line of the upper Diameter cuts the lower edge of the Cornice a line at 45 degrees to determine the projection of the Cymatium, or that of the Mutule or of the Corona.

Add one-third the height of the Column for the Pedestal. Divide this into three equal parts, taking the upper third of the upper third for the Cap, and the lower two-thirds of the lower third for the Base. Vignola makes the Base of the Pedestal only one-ninth of the height of the Pedestal instead of two-ninths, as here determined. (Figure 90 illustrates this procedure for the Tuscan Order.)

II. If the height of the Column is given, a fourth part of this added at the top gives the height of the Entablature, and a third part added below gives the height of the Pedestal. One seventh, eighth, ninth or tenth of the height of the Column gives the lower diameter of the Shaft (90). The drawing may then be carried forward as above.

Fig. 90.

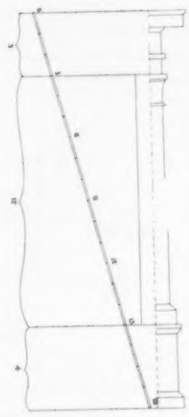


Fig. 91.

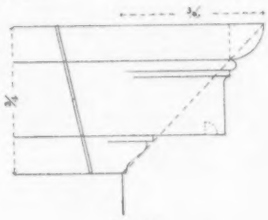
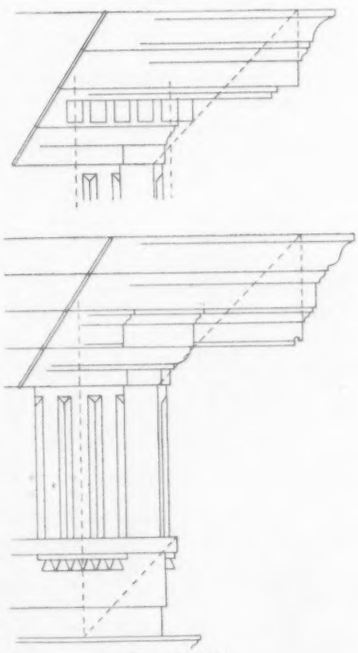


Fig. 92.



Figs. 93 and 94.

III. If the total height of the Order is given, without the Pedestal, a division into five equal parts gives four parts for the Column and one for the Entablature (90).

If there is a Pedestal, and it is of the regular height of one-third the height of the Column, the division of the total height must be into nineteen equal parts, four of which go to the Pedestal, twelve to the Column, and three to the Entablature (91).

The lower Diameter can then be obtained from the height of the Column, and the drawing completed, as above.

Note. — The division of a given dimension into equal parts may be effected with the dividers, or, more easily, by using a scale of equal parts which are the same in number as the desired subdivisions, but a little larger, and holding this scale obliquely between the extreme limits of the space to be divided (90, 91).

The division of vertical dimensions into five, seven, eight, nine, ten, eighteen or nineteen equal parts, as here required, is thus easily accomplished. To ensure accuracy, the lines marking these divisions should be horizontal, not normal to the direction of the scale.

Cornices. — The Tuscan Cornice may be drawn by dividing its height into quarters, as is done in the figure, giving the upper quarter to the Ovolo and the lower to the Bed-mould, and giving the middle half to the Corona, Bead, and Fillet (92). A 45-degree line gives the projection of the Bed-mould, Ovolo, and the Cornice itself.

The Doric Cornice is also divided in four equal parts, the upper one comprising the Cymatium and Fillet, the next the Corona and the small Cyma Reversa above it, the third the Mutules, or the Dentils with the Mutules above them, and the lower one the Bed-mould, including the Cap of the Triglyph, which is narrower in the Mutulary Doric than in the Denticulated, by the width of the Fillet above it (93, 94).

A 45-degree line drawn outward from the middle of the top of the Abacus gives, where it cuts the lower line of the Frieze, the projection of the Tænia. A similar line, where it cuts the upper line of the Frieze, gives the axis of the next Triglyph (84). The Triglyphs are drawn next, with their Cap, and the Regula

[1] Continued from No. 1359, page 12.

and Guttæ, then the Mutules, or the Dentils.

In the Doric Order a line at 45 degrees drawn from the bottom of the Cornice gives the face of the Corona in the Denticulated Doric, the face of the Mutule in the Mutulary; in the other Orders, a similar line gives the projection of the Cymatium (93, 94).

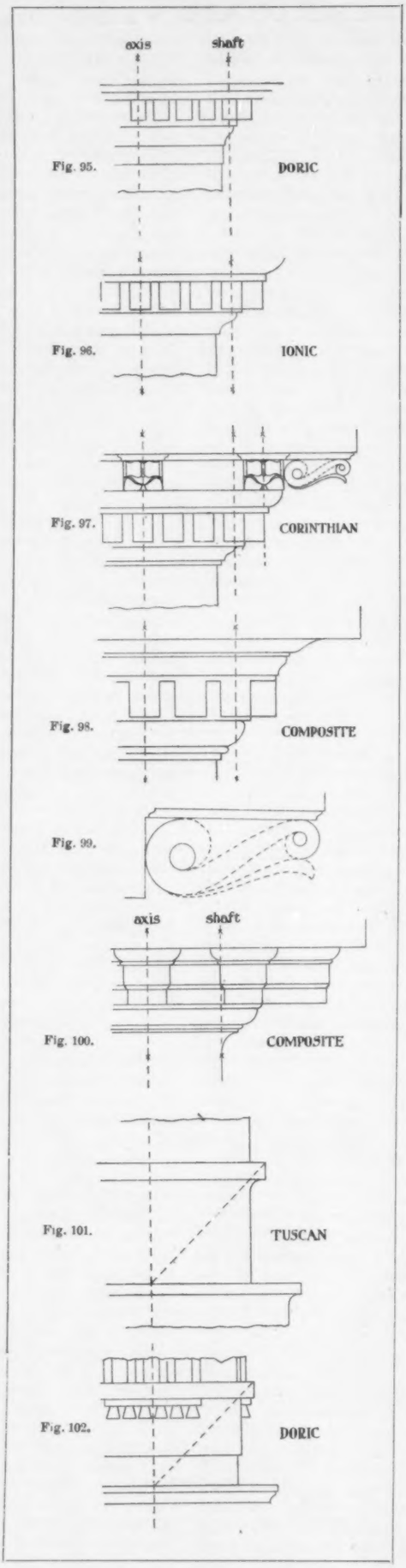
In putting in Dentils, draw first the one over the Axis of the Column, then the Double Dentil, the first half of which is centred over the lower face of the Column, and then the intermediate ones, three, two, or one, according as the Order is Doric, Ionic or Corinthian, or Composite (95, 96, 97, 98). The Interdentil is half the width to the Dentil, except in the Composite.

One Corinthian Modillion comes over the axis of the corner column, and one over the outer face of the Double Dentil (97). In drawing the side of a Modillion, put in first, at the outer end, a semi-circle half its height and one at the inner end nearly the whole height; then the rosettes, one twice as large as the other; then the connecting curves, and finally the leaf beneath (99).

In Palladio's Composite Cornice, one block is set over the axis of the column, and the double block at the corner has its inner face on a line with the face of the Frieze below. The blocks are about half a Diameter o. c., the inter-block being one-twenty-fourth of a Diameter wider than the block itself (100).

Architraves. — The Tuscan Architrave (101) has but one fascia, or band, the Composite two (105), and the Corinthian three (104). The Doric has sometimes one, but generally two (102), and the Ionic has generally two, but sometimes three (103). The lower band is always the narrowest and is set on a line with the face of the Shaft below and of the Frieze above.

All the Architraves have a Cymatium, or crowning member, which in the Tuscan and Doric is a broad Fillet called the Tænia, and in the Ionic and Corinthian is a large Cyma Reversa, surmounted by a Fillet and generally supported by a bead. The lower bands often have, as a Cymatium, a small Cyma Reversa, Bead, or Ovolo, and all three bands are sometimes sloped backward, as in the Entablature of the Palazzo Vendramin-Calergi, at Venice (106), so as to diminish the projection of the crowning mouldings, which generally have a projection, beyond the face of the Frieze, equal to their height.



The Tuscan Tænia has beneath it the characteristic Tuscan congé (101). Beneath the Doric Tænia, and directly under each Triglyph, (102), is a narrow Fillet, which sometimes has a bevelled face, called the Regula, beneath which are the six Guttæ. These are sometimes frustra of cones, as in the Greek Order, sometimes of pyramids. The Guttæ, which almost touch at the bottom, are twice as high as the Regula. Both together are just as high as the Tænia, or one-twelfth of Diameter, so that the three are one-sixth of a Diameter high. They accordingly occupy the upper third of the height of the Architrave, which is three-sixths high, the lower band occupying the lower third.

The two lower bands of the Corinthian Architrave occupy half its height, and the lower band with its Cymatium is just as wide as the mouldings that crown the upper band. The second band with its Cymatium is just as wide as the third band without (104).

Capitals and Bases. — In drawing Capitals, it is best to put in first the axis of the column and the vertical faces of the Shaft; then the horizontal lines, and lastly the profile, beginning at the top. But in drawing Bases it is best to put in the profile of the moulding before the horizontal lines.

The Tuscan Base (107) is half a Diameter high, half of which goes to the Plinth and half to the Base Moulding, which is made to include the Cincture, or broad Fillet at the bottom of the Shaft, which in the other Orders is not counted as part of the Base. But this is merely saying that the Tuscan Base is not quite half a Diameter high.

All the other Bases, including the Attic Base, are just half a Diameter high. All the Plinths are eight-sixths wide and one-sixth high, except the Tuscan and Doric, which are one-quarter of a Diameter high. It is not worth while to define the proportions of the other Bases.

The Tuscan Capital (107) is half a Diameter high, or three-sixths, the upper sixth comprising the Abacus with its Fillet, the middle sixth the Echinus and the Fillet below it, and the lower sixth the Necking. The upper Fillet is a quarter of a sixth wide, the lower one a sixth of a sixth.

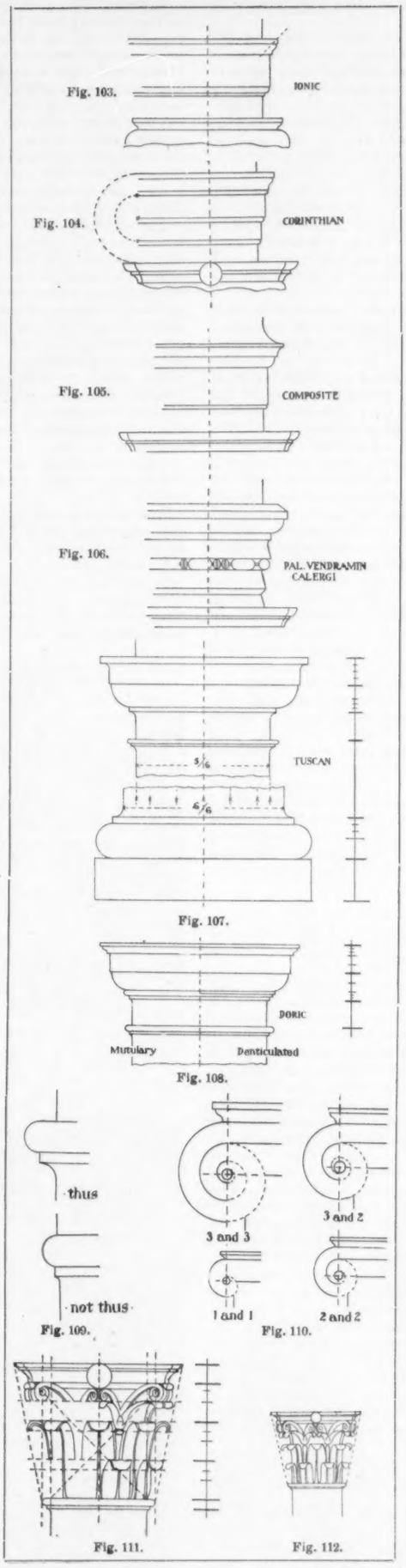
The Doric Capital (108) is also three-sixths of a Diameter high, the two upper sixths being divided into thirds, and these again into thirds, to give the height of the smaller mouldings. The Denticulated Capital generally has three Fillets, the Mutulary, a Bead and Fillet.

The Astragal, which in the other Capitals is $\frac{1}{12}$ D. high, or half a sixth, is in the Tuscan and Doric Orders one-fourth smaller, or $\frac{1}{16}$ D., the Bead being $\frac{1}{24}$ D. high, or a quarter of a sixth. In drawing the Astragals, draw first the horizontal line at the top, which occupies two-thirds of the projection, otherwise the Congé below is apt to be slighted. The Bead and Congé should have their full measure of 180 degrees and 90 degrees (109).

The Ionic Capital, which is one-third of a Diameter in height, or four-twelfths, is also divided into three parts, but unequally. The Abacus occupies the upper twelfth, or one-quarter, and had better be put in first. The Echinus occupies rather more than half of the remaining space, namely five-ninths. In the Composite Capital, the Abacus occupies the upper sixth, and a little more, and the Echinus and the Astragal the next one (98).

The Eyes of the Ionic Scroll come in line with the top of the Astragal and with the lower Diameter of the Column, and should be put in first (110). The Scrolls make three complete turns and finally are tangent to the upper side of the eye. They can best be drawn by putting in first three semicircles on the outer side, and then three smaller ones on the inner side. In working on a small scale, two semicircles on each side suffice, or three on the outer side and two on the inner, as in the plates. But one is never enough (110). The Eyes of the Composite and of the Roman Ionic Capitals are set nearer together.

In drawing a Corinthian Capital (111), it is best to put in first the Astragal and the lower line of the Architrave, carrying up on each side the outer lines of the shaft; then the Abacus, Fleuron and Scrolls. The double scroll at the corner falls just outside these vertical lines. It is slightly elliptical in shape, not circular, and the outer scroll is more elliptical than the inner, being more foreshortened. The small scrolls under the Fleuron are also foreshortened into ellipses. Then the five leaves of second row,



the middle one in elevation, the two side ones in profile, and the other two at 45 degrees, carrying down the mid-ribs to the Astragal. Their tips turn down half a sixth, those of the corner leaves coming just on the outer lines of the upper shaft. Of the four leaves of the lower row, the two inner ones occupy the spaces between these mid-ribs, and the ends that turn over fall entirely within the outline of the lower parts. The two outer leaves extend on either side slightly beyond the width of the shaft below, and their tips fall just outside the lower line of the leaves, being about six-sixths of a Diameter apart. They accordingly come just over the outer lines of the lower Diameter, just as the tips of the corner leaves above them come on the lines of the upper Diameter.

A line drawn tangent to the Astragal and to the Abacus is also tangent in all three rows of leaves, very nearly. The Caulicoli, the Buttons, the third row of leaves, and the lower parts of the Volutes follow, in this order.

The smaller the scale of the drawing, the more straight and upright should the Acanthus leaves be made (112). W. R. WARE.

[To be continued.]

SOME REMODELLED COLONIAL CHURCHES.

THROUGHOUT that portion of the United States lying east of the Alleghanies, there are a large number of church edifices built during the eighteenth and the early years of the nineteenth centuries, which are still used by religious bodies as houses of worship. A few are of stone, more of brick, but the majority are of wood. Nearly all of them are to be found in that portion of the country comprised by the original thirteen States, and of these, by far the greater number are in New England.

The reason for this distribution is simple. In Massachusetts, there were in 1800, seventy-five inhabitants to the square mile; in Virginia, there were only nine to the square mile. There were not over a half-dozen towns in Virginia with a population of over a thousand. There were forty in Massachusetts.

The prevailing Protestant creeds in New England at that time were Congregational, Baptist and Methodist, all of which leaned rather to segregation of church bodies than to consolidation. The tendency of the leading denominations south of New England, Presbyterian and Episcopalian, ran toward consolidation, so that outside of New England, even in the States with greater

population, the churches were fewer, though often larger and more elaborate.

We are apt to think of the older Southern cities as having to-day more examples of "Colonial" architecture than the Northern, but there are more churches standing in Boston which were there in 1810 than there are in Charleston, S. C., just as there are more old buildings of all descriptions.

In 1810, Charleston had seventeen churches to Boston's twenty-one, and a population of 24,500 to Boston's 33,000. But Boston's proportionately greater increase in population has hidden the older work from sight.

There are few towns of less than 50,000 people in any of the New England States which do not have at least one or more of the typical "old white meeting-houses." Many of them are not a century old, but nearly all, if not all, are of the type broadly classed as the Colonial, and nearly all of wood. In plan, they resemble very closely the more elaborate buildings of stone or brick, of which a few examples are left in the larger cities.

They are pretty thoroughly built as to frame; some of them have held their clapboards and shingles for three-quarters of a century. A few in their detail are elaborate, and generally the detail is good, even in buildings where there is but little.

The preponderance of these wooden churches over those of brick and stone is due mainly to the fact that the congregations of the smaller towns and cities where they were built have not grown as rapidly as in the larger cities. The building of seventy-five or a hundred years ago is still ample for the church society. It is doubtless true, too, that, in proportion to population, there is — or was — a more intense interest in religion in the smaller communities. In 1837, for example, Boston had one church to 1,230 of her population; the town of Bolton, in the same State, had a church to every 280 of her population. It is not surprising, therefore, that the Bolton churches are of wood, nor surprising to find, even though the Bolton ratio may be an extreme one, that the wooden churches outnumber the brick and stone.

Out of this multitude of frame churches, that are still standing, and that are used by religious bodies, there are many which are practically unchanged, save for a few coats of paint, a little more genial atmosphere induced by modern heating methods and modern theology, and a new shingle or clapboard here and there. Others have been transformed externally by Gothic spires and turrets, and "art glass" windows, but remain, as to framework and plan, the same. And it is with the enlargement and renovation of a few of these older churches that this article has to deal.

In the following examples, an endeavor has been made to preserve in the appearance of the buildings as much as possible of the Puritanized Renaissance style, which is the main characteristic of our earlier church-architecture, and, at the same time, provide for the demand, in one instance, for an increased congregation; in the others, for changed methods of church-administration.

It may be noted in passing that all these churches are Congregational, and therefore of the type which, rightly or wrongly, represents in New England the Puritan and Pilgrim spirit.

. . . . . .

Although this article refers to the region east of the Alleghanies as that portion of the country which would be considered, the first of the buildings chosen lies west of the Alleghanies.

Marietta, the oldest city in Ohio, was founded by a body of emigrants from Massachusetts and Connecticut who, under the name of the Ohio Company, and led by General Rufus Putnam, of Connecticut, travelled overland to Pittsburgh, and then by water to the site of the present city. In 1806, eighteen years after the settlement of the town, the Congregational Church, the oldest of the three buildings chosen, was built. Up to 1900, the only change in the building was an addition at the rear to hold the organ, and the cutting off of a portion of the church to form the front vestibule, the original vestibule having been a one-story lean-to, between the towers on the front of the church.

It was the idea of the church society to preserve as much as possible of the old building. The frame was practically sound. The instructions to the architects were to double the seating capacity of the church, make the galleries available, improve, if possible, the exterior appearance of the building, and not spend over $15,000 in the process. The two plans show the relative size of the building before and after alterations. The gallery was dropped about two feet, and the pitch of the gallery floor increased, and by carrying it across the ends of the transepts, it was possible to reach it by staircases from either side of the pulpit platform. At the front of the church, the floor of the old portion was given a slight pitch, but the floor of the new part kept level. On either side of the organ space, there are dressing-rooms and choir-room, and a pastor's room, reached from the main floor of the church and from the landings of the galleries. The old interior finish of the church, which was simple but good, was retained, and the new, so far as possible, is like it.

The exterior of the original church is particularly striking in its two towers. So far as I know, it is the only so-called Colonial church in America which has them.

It has been suggested that French or Spanish influence may have entered into this. It is known that quite a large number of French emigrants settled here in the early years, and there was, of course, some Spanish intercourse from St. Louis by the way of the Ohio River.

It seems more probable, however, that the façade of St. Paul's, in London, may have been in the minds of the builders, or that the two towers are due to the desire to surpass the buildings which the new colonists had left in New England. So far as design and proportion went, the towers were exceedingly bad, and, in fact, the exterior is not nearly so good as the interior, either in its general design or its detail. The door and the window casings of the interior are refined, and evidently studied with a good deal of care, but those on the exterior are crude. It is very surprising, however, that so much detail is present at all when one considers that less than twenty years before the church was built, the nearest town lay several weeks' journey away, through an unbroken wilderness. Marietta was more isolated in 1806 than the smaller towns in New England of 1680.

The second example, the church at Ware, Mass., is changed but very little, so far as the exterior is concerned, the only changes on the front (which is the main architectural feature of the church, as of most Colonial churches) being an elaboration of detail. Instead, the essentials called for were three: More Sunday-school room, more choir and organ space, and a gallery which not only could, but would, be used. These additions have been satisfatorily made from a practical point-of-view. It is a question whether the interior of the church before alteration was not quite as pleasing as it is to-day.

The church at Williamsburg, in Massachusetts, belongs to a later type of architecture, that of the Greek revival, but it was so poverty-stricken in its carrying out that it seemed hardly necessary to keep closely to the original type. The extra room called for here was needed in the form of two parlors and a larger Sunday-school room, and the limitations of the site left only the front of the church available for an addition, as the rear of the church came close to a steep ledge at the foot of the hill. The fact that these smaller rooms necessitated numerous windows influenced the decision as to the style of architecture, for it seemed that the older Colonial work, with its lighter detail, would harmonize better than the later type of the original church.

In all three of these examples the problem has been to reconcile three factors: Sentiment, economy and practical necessity. They don't harmonize perfectly, perhaps, but the attempt has at least been interesting to those who made it. G. C. G.

STRUCTURAL COLOR-DECORATION OF THE INTERIOR OF PUBLIC BUILDINGS.[1] — II.

BEFORE speaking of different forms of painting available, I would like briefly to touch upon the possibilities offered to us by the use of marble, mosaic and plaster, *stucco duro* and sgraffito. These are so closely allied to the first division of the subject, that I would speak of them here. We know that the Egyptians, Greeks, and Romans used color largely in their buildings, but we can have but little idea of the magnificent effects often attained by means of their fresco-painting, encaustic-painting, *tempera*, modelled plaster, mosaic, marble linings and veneering, bronze, ivory, gold and silver overlaying, and inlaying.

For instance, we read of the Golden House of Nero, that the walls were encrusted with gems and mother-of-pearl; of banqueting-halls having ivory ceilings; of a ceiling in the State dining-room, which was spherical in shape, and cut in ivory to represent the constellated skies, and kept in constant motion by machinery in imitation of the stars and planets. This magnificence, inventive and symbolic, partook something of the marvellous and the rare, qualities which we have far to seek in this prosaic age. In their large halls, basilicas, and baths, it was also a custom of the Romans to line the walls with marble slabs to a considerable height, and above to use mosaic or plaster reliefs. The vaulted ceilings were generally coffered, and decorated in plaster reliefs, colored and gilt; bronze rosettes were also used in the coffers.

These were general forms of decoration throughout the Roman Empire both in the West and East. We find them used by the Byzantine builders, in Constantinople, Sicily and Italy, and we may be of opinion that few finer schemes of decoration have ever been devised. In some manner adapted to our modern needs they are available to-day, and it is understood that marble and mosaic are to be adopted in the new Roman Catholic Cathedral at Westminster.

In considering the use of mosaic at the present time, we may hope that the modern and vicious habit of preparing mosaic tesseræ face downwards on a sheet of paper laid on a flat table, and then pressing the sheet of paper into position on the wall, has been finally given up. The old and only right method is to fix each tessera into the cement pushed in by hand from the front. Too many works of the last century are deficient in one of the most important elements of decoration, namely, the right technique. Sir William Richmond, in St. Paul's Cathedral, the largest example of mosaicwork of modern times, has shown in the work which he has done there that there is no more trouble and no appreciable loss of time in doing mosaicwork in the only true way, viz, pushing it in, tessera by tessera, from the front. His assistants after very little practice have been able to do the work on these lines with the greatest rapidity, and naturally with intelligence and interest in seeing their work in position as it proceeds.

Time will not permit me to speak of modelled plaster and sgraffito in any detail, except to express the satisfaction we must all feel that these ancient arts of tried quality are understood and worked in a

[1] A paper by Gerald C. Horsley read before the Society of Arts, and published in the *Journal* of the Society. Continued from No. 1374, page 32.

modern spirit to-day. The composition of *stucco duro* has been often described, and we know by the remains of ancient Roman work found in the Villa Farnesina, and of the works of the sixteenth century in the Loggia of the Vatican, and the Villa Madama, and other buildings in Italy and France, what exquisite possibilities this material presents. The work, particularly in the early Renaissance, was usually decorated in color. This was generally laid on while the stucco was wet as in fresco, and the details heightened with *tempera* or encaustic colors, and accessories enriched in gilt *gesso*.

We may congratulate ourselves that artists like Mr. George Frampton, A. R. A., and Mr. Anning Bell have worked in this material in churches and other buildings in our time. The processes of *stucco duro* and sgraffito are fully described in the "*Arts and Crafts Essays*" published in 1893, the former by the late Mr. G. T. Robinson, and the latter by Mr. Heywood Sumner, whose work in All Saints' Church, Ennismore Gardens, affords an example of modern treatment. I need not do more than name these two forms of lasting decoration, peculiarly structural, and available to us to-day.

I may be blamed for not referring with greater fulness to the painted wall-surfaces and roofs, of which there are many, in our modern churches. This work is raising itself above mere commercial expression, and under the direction, and with the coöperation of the architects of these buildings, we have instances by many painters of ability and knowledge.

If there is one thing which may strike us in this modern work as being different and inferior to the best work of the old time, it is a very general want of use of the full brush of color carried through the work with bold and masterly sweep, avoiding thereby, in the necessary repetition of a pattern, the mechanical and accurate repeat so constantly seen in modern work, and never to be found in the old.

What makes so much ecclesiastical decoration of the present day so devoid of interest is just this absence of intelligent handling. We are better without color if it is not used in a manner consonant with its dignity. We may be sure its revenge on us will be ample if we use it in any other way, as much in the lowliest border or diaper as in the picture it may surround.

In our theatres and places of public entertainment, the same progress is, alas, not being made. The desire of the modern theatre-manager to build a theatre, and to open it in six months, is against the production of anything else than a place in which plays may be produced. We are far behind the French in this matter. In Paris the foyers and staircases of the principal theatres are notably decorated by artists; so that the audience has the privilege of knowing that it is not in a mere box of upholstery, but in a temple devoted to the arts. I am inclined to think that were our theatres of the latter kind the interest of the audience in the art of the drama would be quickened and encouraged.

And now as to the principal methods in use by painters at the present time. Probably, the world has never seen a more beautiful method of painting than buon or true fresco, but, alas, its use has not been fully justified in this country. The Royal Commission I have just referred to took a good deal of evidence as to its suitability for the decoration of the Houses of Parliament. A number of painters of eminence spoke against its being attempted. They advocated the use of oil-color. But the Commissioners, perhaps dazzled by what were then considered the triumphs of modern art, — the frescos at Munich, decided that the new paintings should be in that method.

Dyce, Cope, my father, and one or two others were successively commissioned. Exposed, however, to the bad air of their surroundings these works have, in some cases, suffered beyond repair. So doubtful were the painters themselves as to the suitability of the scheme, that when Maclise was commissioned to paint the walls of the Painted Chamber he, with the sanction of the Commissioners, proceeded to Germany in order to make researches into the practice of stereochrome, or water-glass painting. The result was that he adopted the process in the large wall-painting, "The Meeting of Wellington and Blucher after the Battle of Waterloo"; it was also adopted by Mr. Herbert, who was then engaged on other wall-surfaces in the palace.

You will permit me to remind you of what happens in buon fresco. The powder-colors mixed with lime-water are applied to the last and freshly-spread coat of plaster before it has had time to absorb more than a trace of carbonic-acid from the air. The painting-ground is, in fact, saturated with an aqueous solution of hydrate-of-lime, that is, slaked lime, while there remains a large reserve of this compound in an undissolved condition. When on such a surface a layer of pigment mixed with water is placed, as that water evaporates the lime-water in the ground diffuses into the paint, soaks it through and through, and gradually takes up carbonic-acid from the air, thus producing carbonate-of-lime, which is the actual binding material.[1] The whole painting gains in this chemical action, appearing to absorb light and to reflect it from the sand facets of the ground to the spectator.

But, unfortunately, and here I again quote from Professor Church's interesting book "*The Chemistry of Paints and Painting*," "the protection afforded to the pigments by the binding material, this carbonate-of-lime, is not generally very efficient. In the case of a dry wall, free from soluble saline matter, and exposed to a pure atmosphere, it may remain good for centuries. But in air contaminated with the products of the combustion of coal and gas, and with tarry and sooty impurities, a fresco picture soon perishes. The binding carbonate-of-lime is converted into the sulphate, breaking up the paint. The same causes will form sulphate-of-magnesia from the carbonate-of-magnesia in the plaster, and the paint will scale off."

In our large towns, therefore, to-day, buon fresco has no chance of lasting.

The stereochrome, or water-glass, process consists in spraying the painting after completion with a warm dilute solution of potash-silicate, or potash-soda silicate, which is obtained by fusing the purest sand obtainable with carbonate-of-potash or carbonate-of-soda. The pigments themselves are mixed with some of the fixing liquid. This form of painting is a German invention of comparatively recent date; it has not been frequently used in this country, and we have very little experience of its behavior.

In the consideration of the possibilities of *tempera* painting we find ourselves on surer ground, no longer so fearful of the consequences of the contaminated atmosphere of our towns. I am glad to be able to read you a few words I have received from Sir William Richmond as to this medium, which he used on the walls of a modern church at Cheltenham a few years ago. He says: —

"The wall was prepared with lime and sand, the final *intonaco* was in marble-dust and well-slaked lime, and it was wonderfully white. The whole design was drawn in charcoal, corrected with care. Egg, Capri wine and powder-colors were used. The yolk of egg alone was used, plenty of wine and distilled water. The first painting should be in what the Italians called 'Verdaccio,' namely, raw siena (black and white), with plenty of *impasto*. In two hours this can be glazed with warm color and painted into. I am quite certain that the yolk of egg and wine form the very best and most durable medium for wall-painting. Most of the Italian wall-paintings which have lasted were not painted in fresco, but in the *tempera* of yolk of egg, the essential oil of which is a most powerful binding liquid, enabling the painting to dry like a rock."

Sir William further says: —

"I prefer yolk of egg and wine, even to buon fresco; the color is almost as pure, not quite so light, and if it is necessary to get rich color, the medium will give it to any extent."

Professor Church, speaking of the large amount of oil in the egg-yolk says, "This vehicle does not act so effectually as oil and varnish in locking up pigments, and so the protection against change which it affords is less." But I think we may take it that the protection is certainly considerable, while the old method of varnishing the painting with sandarac in oil affords further protection against moisture and impure air.

The well-known spirit fresco, invented by the late Mr. Gambier Parry, differs little from ordinary oil-painting on account of the large quantity of oil in the copal, which forms so much of the medium, the constituent parts of which, I may remind you, are only multiples of these proportions, viz.: —

	ozs.
Gum elemi or elemi resin	2
Pure white wax (beeswax)	4
Oil of spike lavender	8
Finest preparation of artists' copal	20

With this medium incorporated by heat all colors in dry powder are mixed. It appears that Mr. Gambier Parry gave the name of spirit-fresco to the method because oil of spike and turpentine may be freely used as liquids during the process of painting. The beeswax secures, of course, a perfectly matt, or dead surface, but it is liable to produce a kind of bloom in the course of years, and may wholly disappear in the course of time.

Besides the paintings by Mr. Gambier Parry at Higham and Gloucester Cathedral, Lord Leighton's "Arts of War" and "Arts of Peace," at South Kensington, and seven paintings by Ford Madox Brown, in the Town-hall of Manchester, are examples of this method. They appear to be standing well, though we may expect them to darken, and there are a few signs of the bloom referred to above in the "Arts of Peace."

Professor Church considers that a sound medium is to be found in the proportions of: —

	ozs.
Oil of spike	12
Paraffin wax	4
(The two mixed by heat.)	
Copal picture varnish	20

He advises the pigments being mixed in blown linseed-oil, rather than in the medium itself, as Parry recommends.

I need not do more than allude to Parry's Ely medium. Briefly it is: One part pale drying oil; one part strong copal varnish; two parts japanner's gold-size; two parts turpentine, and the powder-colors to be ground up in the medium. It is just oil-painting over again with the gold-size to give the necessary deadness of surface. He painted the eastern part of the nave, wooden roof, also the octagon and transept ceiling at Ely Cathedral in this medium.

I have dwelt on the component parts of these wax and oil mediums in some detail, as it is but a step from them to the method which is generally adopted by painters to-day. I refer to the prevalent custom of painting in oil on canvas, and then, on completion of the picture, having it fixed, or *marouflé*, as the French call it, to the wall or ceiling; that is to say, the canvas is fixed by means of a thick paste of white-lead, oil and copal varnish spread upon the wall and simultaneously upon the back of the canvas.

[1] I am indebted to Professor Church's "*The Chemistry of Paints and Painting*" for this description.

The French painters in the beginning of the nineteenth century, like their German brethren in Munich, painted mural works in fresco, but they were already beginning to discard the practice when we in our wisdom were working in it at Westminster. They also used encaustic-painting (Delaroche's "Hemicycle" in the École des Beaux-Arts is an example), but since 1870 the most important works have been painted on canvas fixed in the way I have described; such are the great wall-paintings by Puvis de Chavannes, in the Panthéon, in the museums of Amiens, Rouen and Lyons; the Sorbonne, and the Library in Boston.

This, too, is the method adopted in the Royal Exchange, at Liverpool, at Glasgow, and by Messrs. J. S. Sargent, R. A., and E. A. Abbey, R. A., in the Library at Boston.

Without going deeply into technicalities which would naturally vary with each painter, the colors used are simply oil-colors, with a medium of wax and turpentine. Professor Moira, who has painted in this way at the New Renshaw-Street Chapel in Liverpool, and at other places, tells me he likes the canvas to be fairly coarse and open, so that there should be no hindrance to the fixing material incorporating itself with the colors laid on. This is better achieved by doing the first painting only in the studio, and completing it *in situ* after it has been fixed upon the wall or ceiling. The painting of the picture *in situ* in this way will, I am sure, commend itself to all as a most important side of this system of decoration. It is understood that some of the modern works I have named have been painted entirely in the studio; corrected in many cases, no doubt, when in position. But as a practice it must surely carry with it its own condemnation. Although scale-drawings and models may be made with the utmost care, and cartoons in full size tried in position, all of which should be done, and invariably are done, before the painting is begun, unless the work, or at least the major part, is carried out in the building, it is not possible for the painter to be confident as to the correctness of his scale, or, what is more important in its difficulty, of his color. Both these elements, more particularly the last, must surely be influenced by the size and lighting of the building, an intimate knowledge of which is revealed by working in it. Are we to suppose that the ceiling of the Sistine Chapel would have been as magnificent as it is if it had been painted by Michael Angelo in a studio and then fixed in position? I confess the very thought is sacreligious, and I tremble at suggesting it.

In this connection, I am reminded of a painting on canvas, in St. Alban's, Holborn, which was painted chiefly on the wall, where, by its position in a dark corner of a church, certain colors had to be used which are startling in what would be their inappropriateness in a better light. For instance, in order that the hair of the Saviour, one of the figures in the composition, should appear brown, pure vermilion had to be largely used; ordinary light brown appeared black.

But it is unnecessary to multiply instances, and I would venture, therefore, only to suggest that, as, in most cases, the position of the painting directs the color to be used, it is desirable that it should be, as far as possible, painted *in situ*.

It is to be hoped that the convenience of this modern method of painting on canvas will not deter painters from working directly on the plastered wall in *tempera*, oil, or encaustic. If the beautiful qualities of fresco are denied to this country, there are yet the qualities inseparable from a plaster ground, which a canvas surface can never present in the same way.

Design I need not touch upon. There is no excuse for bad work, surrounded, as we all are, by the highest examples. A fine translation of modern life appears to be growing in mural painting of the great type, and is heartily to be welcomed. In this connection, I would draw attention to Mr. Furse's work at Liverpool, and some of the work at Glasgow, while, in allegory, we have the great work of Mr. Sargent at Boston. In setting ourselves a standard we may remember, perhaps, the words of Puvis de Chavannes: "*Toute décoration ne peut être belle que dans la mesure où elle reflète la Nature et en traduit la passion.*"

[To be continued.]

ILLUSTRATIONS

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

SOME REMODELLED COLONIAL CHURCHES: — CONGREGATIONAL CHURCHES AT WARE AND WILLIAMSBURG, MASS., AND MARIETTA, O.: THREE PLATES. ALTERATIONS BY MESSRS. E. C. & G. C. GARDNER, ARCHITECTS, SPRINGFIELD, MASS.

SEE article elsewhere in this issue.

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

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NOTES & CLIPPINGS

TREES IN PARIS. — The annual cost of maintaining trees in the streets of Paris, where they alternate in rows with iron lamp-posts, is $90,000. There are 87,693 trees in the city of Paris growing in rows along the sidewalks, exclusive of the trees contained in the city parks, gardens and squares. A corps of tree-inspectors is constantly on the alert watching the trees. The soil is frequently renewed. Iron "corsets" are placed around young trees to protect them from injury. A circle at least three yards in diameter is kept free from asphalt or pavement around the base of each tree. This circle is usually covered with an iron grating, to preserve the proper level of the sidewalk. The trees are watered by the street hose twice a day. Excavations are made around the trees so that the water collects about the base of the trunk and percolates freely to the roots. The variety of trees planted along the Paris sidewalks comprises horse-chestnuts, elms, acacias, lindens, sycamores and the Japanese sumac. Horse-chestnut trees are great favorites with Parisians, because they come so early in leaf. The present spring is unusually advanced. The horse-chestnuts put out their leaves on March 17, and, notwithstanding the recent cold winds and rain, the streets of Paris are already fringed with delicate green branches. Ever since the Haussmannization of Paris began, fifty years ago, the French Academy of Science and the Health Department of the city have never ceased to impress on the Municipal Council the necessity of maintaining rows of trees along the main streets. The City Fathers fully appreciate that trees materially improve the health-rate of the population, by absorbing noxious gases and emanations, and by renewing the air breathed by the citizens. Paris has within the mural fortifications a population of 2,660,559 inhabitants. If the public parks, squares and gardens be included in the calculation, it will be found that in Paris there is at least one tree for every inhabitant. The official statistics, however, do not comprise trees planted in public or private parks, squares and gardens, but only those growing in rows along the sidewalks. The number of these trees is 87,693. That is to say, in the streets of Paris there is one tree for each 3.3 inhabitants. It might be interesting to ascertain how the six most populous cities in the United States compare with Paris in this respect. New York, with its population of 3,437,202 inhabitants, in order to reach the Paris standard of a tree for each 3.3 of its citizens, should have 104,158 trees planted in its streets, exclusive of those in public or private parks, gardens, squares or back-yards. Chicago, with its population of 1,698,575, in order to keep up with Paris, should possess rows of trees along its sidewalks containing 51,139 trees. Philadelphia, with a population of 1,293,697, should have 39,203 trees in its streets. St. Louis, with a population of 575,238, ought to have its streets lined with 17,431 trees. In order to compete with Paris in tree-culture, the 560,892 residents of Boston should have 16,997 trees in the streets, exclusive of those in the Public Garden, Common and parks and squares. Baltimore, with a population of 508,957 inhabitants, should have 15,423 trees in her streets. It is probable that some of these cities may already have attained or even exceeded the Parisian standard of one tree to each 3.3 inhabitants, but all interested in the question of municipal science will be gratified to learn that the tree-department of the city of Paris is felt to be of paramount importance for the public health, and the Municipal Councillors of Paris do not regard green foliage as a luxury, but as an absolute necessity. — *C. I. B. in the N. Y. Tribune.*

HOMESTEAD ENTRY CANCELLED. — The Federal land officials in Santa Fé, N. M., on March 27, cancelled the homestead entry of Richard Wetherell, of New York, upon orders of the General Land Office. Wetherell is manager of the Hyde Exploration Company, engaged in numerous enterprises in northern New Mexico, and had filed upon the Pueblo Bonito, Catro Kettle, and Pueblo de Arroya, three of seventeen prehistoric ruins in Chaca Cañon, Southern San Juan County. When he found his homestead entry did not quite cover the ruins he made an amended entry. The Hyde Exploration Company thereupon erected stone buildings on the land, costing $10,000, established a stage-line and hotel for tourists, and commenced excavating. According to a sworn statement made by Wetherell to J. S. Holsinger, special agent of the United States Land Office, he took out of the ruins 50,000 pieces of turquoise, 10,000 pieces of pottery, and many wooden and stone implements and skeletons, which were sent to the American Museum of Natural History at New York. About 500 rooms in the ruins have been excavated thus far, and 179 pit excavations have been made. The General Land Office cancelled the homestead entry because the land was not filed upon with the intent for which homestead entries could be made. — *N. Y. Times.*

LONG-DISTANCE HEATING IN GERMANY. — United States Consul-General Richard Guenther, of Frankfort, reports to the State Department the completion at Dresden, Germany, of the largest long-distance heating-plant in Europe. From a central station, says the Consul-General, many public buildings on the left bank of the River Elbe, including the theatre, the museum, the castle, the royal kitchen, the custom-house, etc., are heated. The greatest distance over which heat is transmitted is three-quarters of a mile. The total heat-consumption per hour is 15,200,000 heat units. The usual steam-pressure is two atmospheres. Ten of the fourteen boilers are used, and to guard against accidents two main lines of pipes have been provided. The loss of heat in transmission is from 4 to 4½ per cent. The pipes are protected by two layers of tin, the inner layer being perforated and the outer one covered with silk. The largest pipes have a diameter of 216 mm. (8.51 inches). — *Exchange.*

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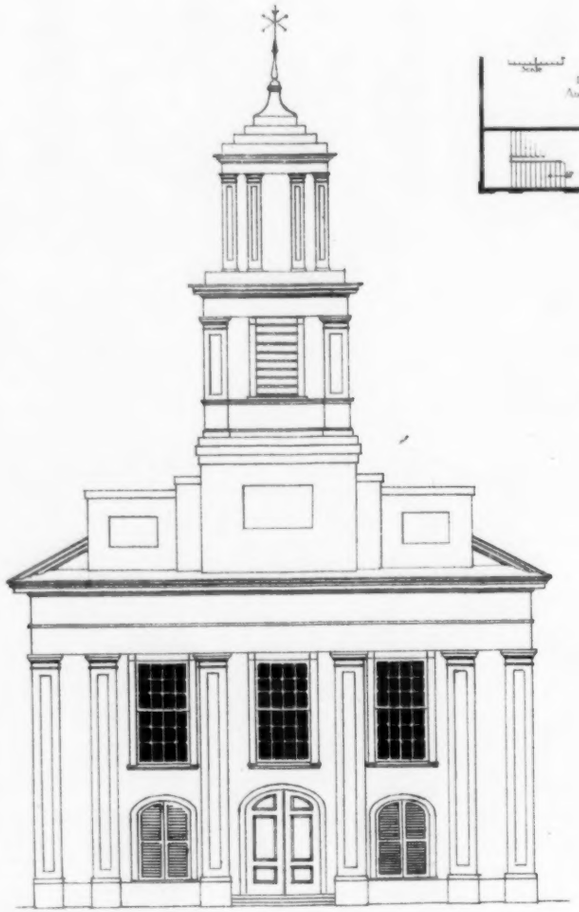

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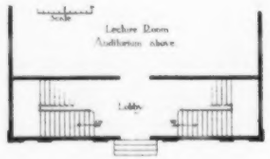

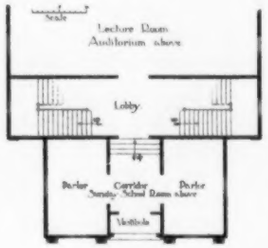

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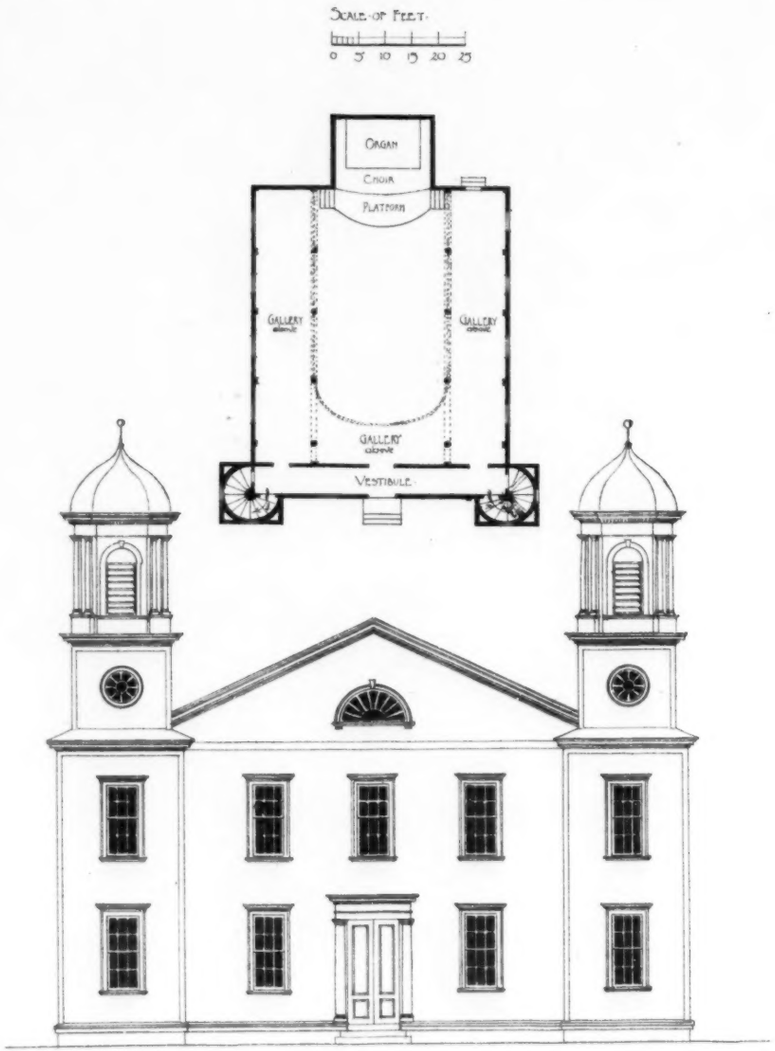

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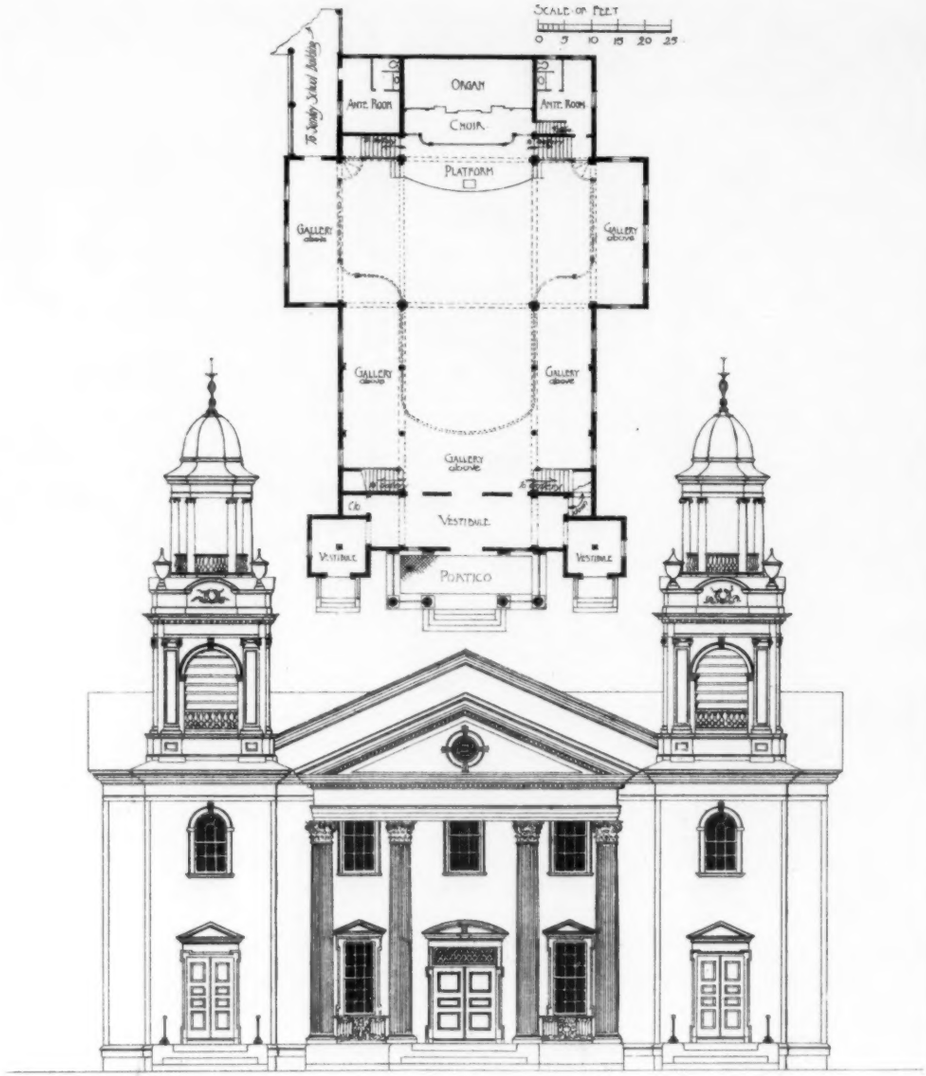

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The American Architect
May 3. 1902.
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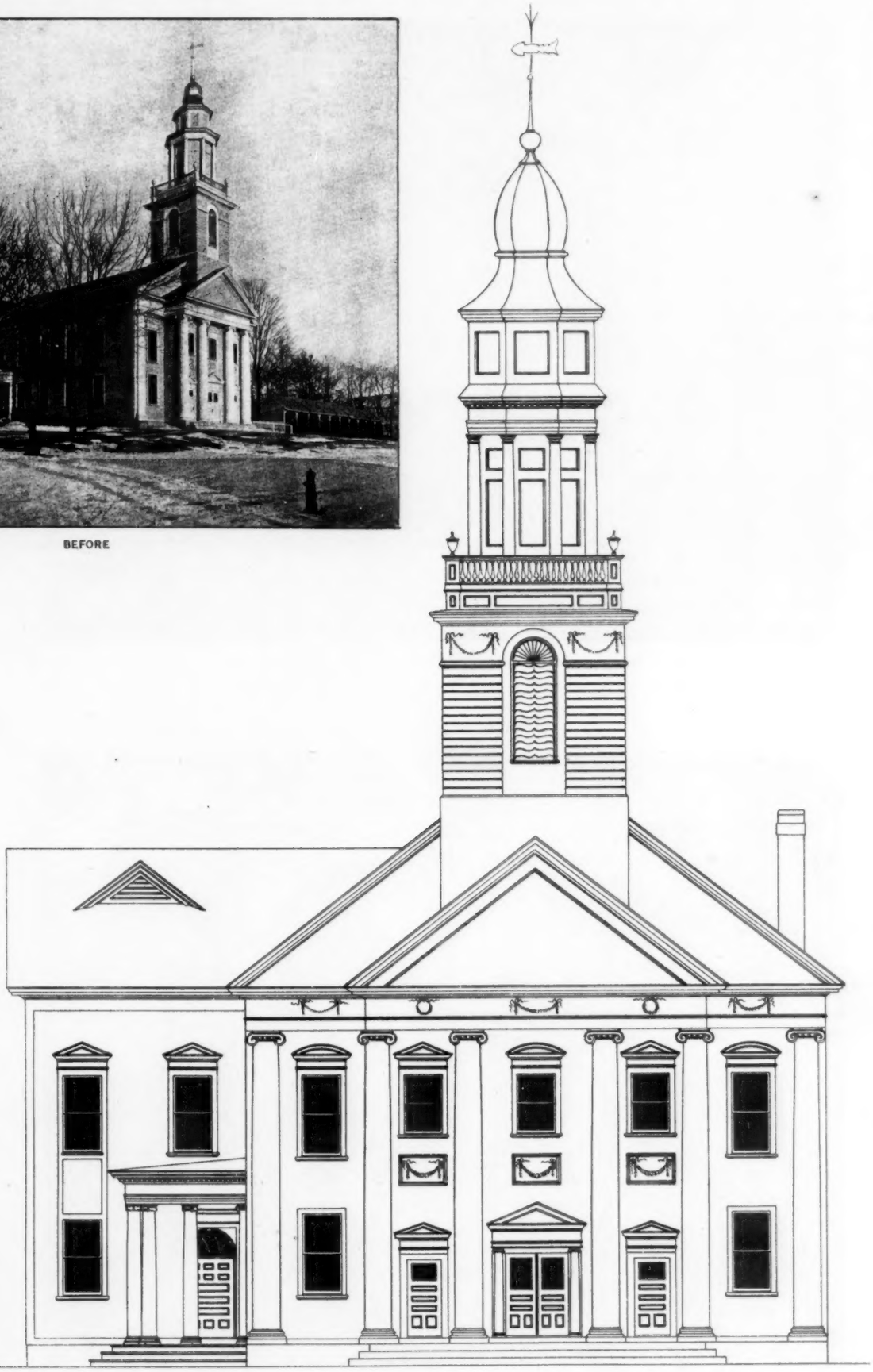

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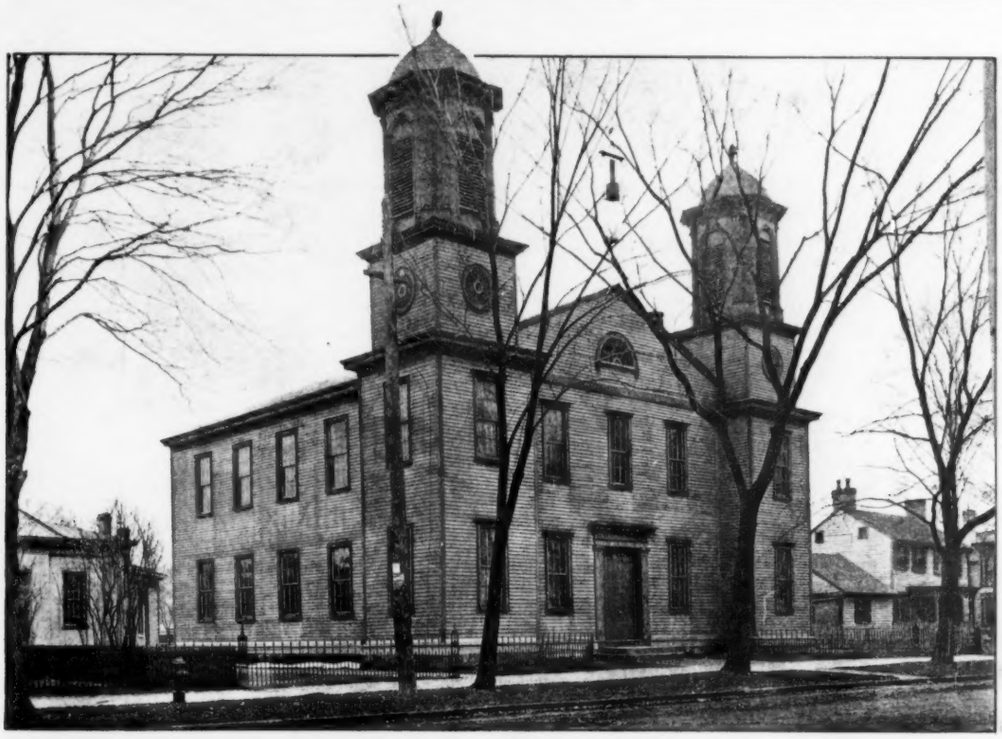

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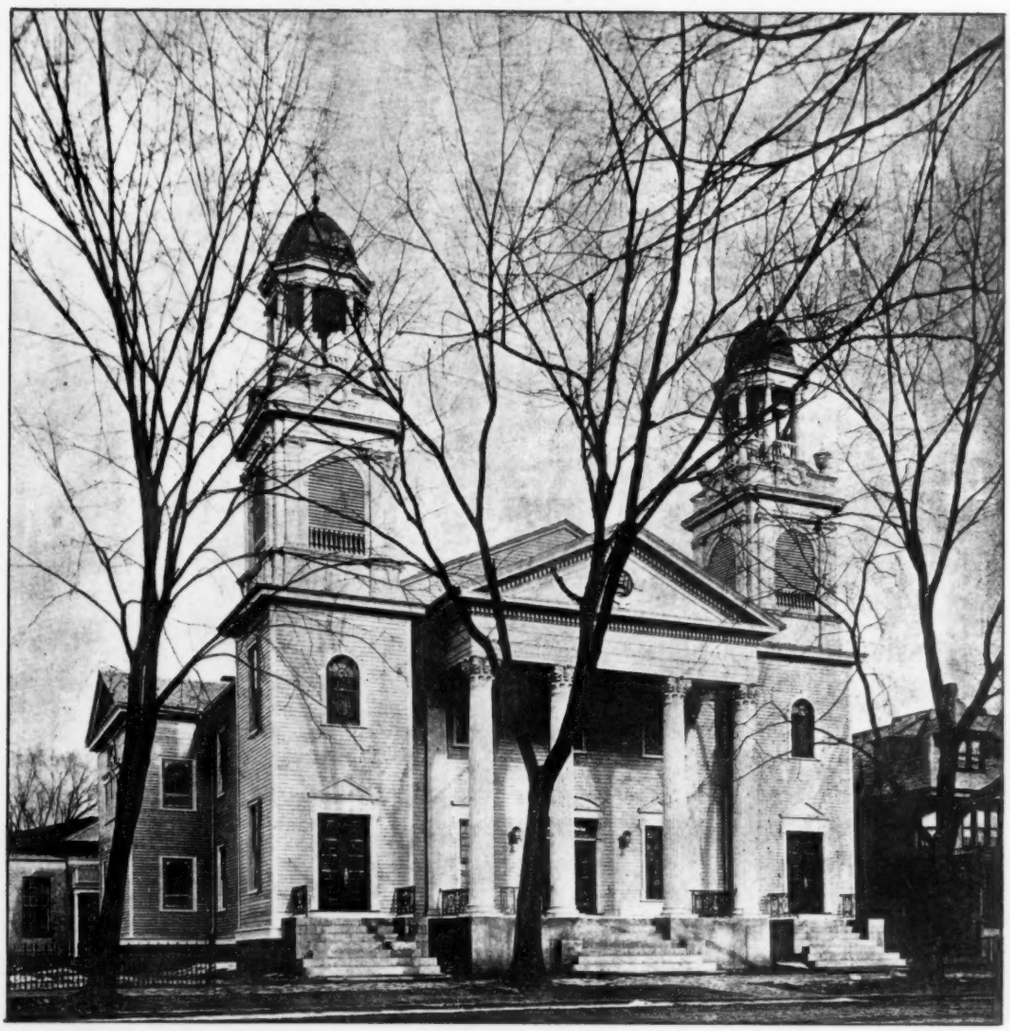

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THE AMERICAN ARCHITECT AND BUILDING NEWS

ADVERTISERS' TRADE SUPPLEMENT

No. 240 SATURDAY, MAY 3, 1902 VOLUME LXXVI No. 1375

HEATING-APPARATUS IN THE YALE CLUB BUILDING.

ARCHITECTS, heating-engineers and others will be interested in the heating-plant of the Yale Club Building, Nos. 30 32 West Forty-fourth St., New York City. Aside from the very satisfactory results that have been obtained since its installation something over a year ago, the equipment is of interest from the fact that steam is furnished to cook with in the Club kitchen as well as to heat the large eleven-story building, the temperature of which has been maintained at 70 degrees even during the severely cold days of the past winter.

The boiler-room is situated below the sidewalk and is equipped with a battery of three Gorton Side-Feed Boilers of the latest pattern, manufactured by the Gorton & Lidgerwood Co., New York City. There is one No. 36 and two No. 38 Boilers.

The building, as shown in the engraving herewith, is an imposing structure and of the highest class of construction throughout. Tracy & Swartwout, of New York City, are the architects.

The Yale Club Building is heated by the two-pipe system, which was put in by Baker, Smith & Co., after the plans of Mr. A. R. Wolff, Consulting Engineer, both of New York City. The two No. 38 Boilers have been found more than sufficient for heating-pressure, and only on the coldest nights has it been necessary to carry more than this.

The Boilers furnish steam for 168 radiators and 18 coils, aggregating 5,470 square feet of radiating-surface, distributed throughout the eleven stories, including basement and roof. Two tanks holding together about 10,000 gallons of water used for various purposes throughout the building are kept from freezing by steam from the heating-boilers, which is supplied to coils suspended along one side of the room under which the tanks are located.

The kitchen, which is on the top floor, is supplied with steam for the cooking-kettles from the No. 36 Boiler, carrying about 40 pounds. This Boiler is licensed to carry 75 pounds, being tested up to 125 pounds water-pressure by the Fidelity & Casualty Co.

Steam is also furnished by this Boiler to the pantry for warming dishes, making coffee, etc., and keeping soups and various other foods warm. The experience with the system for nearly two years in which it has been in use has been highly satisfactory.

The engineer in charge of the plant reports the Gorton Side-Feed Boilers as very economical and exceptionally rapid steamers. Even on the coldest days no difficulty has been experienced in getting steam up to 40 pounds in 17 minutes, and it has only been necessary to coal-up twice in 24 hours. Ease of management is a noticeable characteristic of the Gorton Boilers. They require very litttle attention.

Yale Club Building, New York City.

When it is considered that the engineer in charge of the three Boilers at the Yale Club has also to care for the entire electrical plant and other power-equipment of the building as well as the plumbing, it will be seen that but little time can, of necessity, be given to attending the heating-plant. To sum up, the experience of nearly two years has shown that the system of heating employed at the Yale Club Building is very economical in the use of fuel, extremely easy to care for and most satisfactory in every way in results obtained.

It is suggested as a most satisfactory equipment for hotels, club-houses, and restaurants where cooking by steam is desirable in connection with the usual heating of the premises. We are advised that a number of Gorton Side-Feed Boilers have been used for such purposes with entire satisfaction.

AN EFFICIENT FIRE-EXTINGUISHER.

THE Yantacaw Chemical Fire-Extinguisher, manufactured by the Yantacaw Manufacturing Co., of Philadelphia, is the simplest, most practical and most efficient fire-fighting apparatus in existence both for private residences and public buildings as well as for departmental use.

These Extinguishers consist of a cylinder into which is inserted a perforated metal cartridge filled with the chemical in crystal form, which cylinder is to be attached to any ordinary water-supply pipe; so that the water upon entering the cylinder flows through and dissolves the chemical in the cartridge and leaves the nozzle of the attached hose as a perfectly saturated chemicalized stream.

The chemical used in the Yantacaw is a new invention and possesses marvellous extinguishing powers. While all other extinguishing devices rely upon generating a gas with which to blanket the fire and thus, by excluding the oxygen, smothering the flame, the Yantacaw forms no gas in the cylinder whatsoever, but extinguishes the conflagration by chemical reaction. The stream from the Yantacaw sets free a chemical element which possesses a marvellous affinity for oxygen, and thus, as soon as the stream reaches the

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fire, this element being set free combines with all the oxygen in its immediate neighborhood, taking in not only the flame itself, but also from the surrounding air and all material with which it comes in contact. Besides this, as a secondary consideration, there is also a certain amount of blanketing gas formed which, in conjunction with the small but steady stream of water, of course greatly amplifies the extinguishing powers of this apparatus. Neither the chemical nor the gas is injurious in any manner either to the person or the finest fabrics, as the chemicalized water may be drunk with impunity, and if applied to any fabric whatsoever will leave no stain other than would be caused by plain water.

As the chemicalized stream (which it is advisable to use in the form of a spray from a patent combination-nozzle furnished with every Yantacaw Extinguisher) is so small, but withal so powerful, the damage done by the water has been reduced to a minimum. One quart of the chemicalized water will extinguish 200 feet of flame-area in one second. Every Yantacaw Apparatus is furnished with 50 feet of hose, made especially for this purpose, and a reel to hold same when not in action. While at rest, both reel and hose can be swung close against the wall, thus occupying but a small amount of space, while the slightest pull on the hose will immediately unwind same and swing the reel into the proper position for allowing free play to the hose.

The Company, whose main office is at 800 Land Title Building, will be pleased to make a test, at their expense, of these Extinguishers for any one desirous of personally investigating the efficiency of the Yantacaw Chemical Fire Extinguisher.

YANTACAW MANUFACTURING CO.,
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"THE CARLSBAD OF AMERICA."

There is in course of construction at West Baden, Ind., a hotel for the West Baden Springs Co., which is gigantic in its proportions and novel in scheme of construction. The hotel is circular in shape, which is of itself a novelty, and consists of two ranges of rooms built concentrically about a rotunda covered with a dome. The diameter of the dome is 200 feet. The walled section constituting two tiers of rooms and a hallway increase the aggregate diameter of the building to 290 feet.

In the construction of all this building there was used no structural iron in support of the floors at all. The floors are on a system of Expanded Metal and concrete built directly upon the brick walls finished at each floor-level as the work progresses. It is probably not too much to say that there is no hotel building or other equally large building in the country containing so little structural steel or iron supporting these floor-areas.

In this hotel there are over 300,000 feet of floors, and there will be used about 60,000 yards of Expanded Metal in building the solid partitions between the rooms. The interior section will be covered over with a roof with a dome of steel and glass, making the court useful as a garden all the year round.

The scheme of arrangement and style of building was the suggestion of Hon. Lee W. Sinclair, and Mr. Harrison Albright, of Charlestown, W. Va., was the architect. The general contractors for the hotel were Caldwell & Drake, of Columbus, and the contractors for the fireproofing, which includes the floors and partitions, were the Expanded Metal Fireproofing Co., of Chicago.

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A VALVE EXHIBIT.

We wish to call attention to the following facts:

1. There is an Exposition at Charleston, South Carolina.
2. We have an exhibit there.
3. The following statement of facts is endorsed by the Exhibitors' and Concessionaires' Club, representing the largest firms at the Exposition.
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5. The exhibits are in place.
6. Barring Chicago and Buffalo, it is the finest and handsomest Exposition ever seen in this country.
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10. Charleston, with its wonderful historical associations and delightful climate, is well worth a visit.

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REMARKABLE ENGINEERING WORK.

CONSTRUCTION work on the $2,500,000 annex to the Mutual Life Insurance Company's Building, fronting on Liberty, Nassau and Cedar Streets, which is in several respects the most remarkable structure in the world, is now nearing completion. Remarkable engineering work has been done, with the result that the cellar floor is 55 feet below the sidewalk-level and 35 feet below the line of standing water. The foundations rest on bed-rock 100 feet below the surface of the ground.

Above the sidewalk the annex is eight stories in height in Cedar Street, matching the older extension in that street, while it towers sixteen stories high in Liberty Street. The addition alone covers an area of 16,000 square feet, or about seven city lots.

The building at No. 32 Liberty Street, one wall of which had to be underpinned, is eighteen stories in height, and the highest building ever so treated. The work was complicated there also by the fact that the ground-floor was filled with safes and vaults of a safe-deposit company, and a settlement of the sixteenth of an inch would have stopped the working of the locks.

Caissons formed of steel tubes, 3 feet in diameter, were sunk to support the adjoining buildings, and then work was begun on the foundations proper. A discovery that under the hardpan there was a formation of loose sand and crumbling rock, in places 32 feet deep, forced the excavators to go to solid rock with all the main caissons, and this was about 100 feet below the sidewalk.

A complete enclosure of the lot was made by sinking thirty steel caissons, each 8 feet in width, and ranging from 15½ feet to 22 feet in length. When these were down to the rock a complete water-tight enclosure was made by ramming the spaces between the caissons full of red clay from New Jersey.

This was done by sinking a 3 inch pipe between the caissons by means of a water-jet, dropping cores of clay into the pipe and then forcing this out by dropping a heavy steel bar upon it. The pipe meantime was drawn up foot by foot until the whole of each space was filled.

Thus it was possible to excavate to the hardpan for the cellar floor without draining away the quicksands and bringing down buildings perhaps for blocks.—*Architecture.*

The building referred to above was designed by Clinton & Russell, Architects, No. 32 Nassau Street, New York. Dixon's Silica-Graphite Paint was specified and used for protection of all steel-work.

This paint enjoys great popularity with prominent architects and consulting-engineers, because of the fact that it is manufactured in but the *one quality*, and guaranteed to be of the purest materials obtainable.

The ease with which the paint is applied, its large spreading capacity, protective and wearing qualities, make it a very economical protective paint.

A GREAT CATALOGUE.

CRANE Co., of Chicago, makers of Valves and various Steam-fittings, devote the first seven pages of their new catalogue that has just reached us to illustrate the mere external appearance of the seven groups of buildings that constitute their home plant. The next thirteen pages, in like way, exhibit their branch establishments in New York, Philadelphia, Cincinnati, Sioux City, St. Paul, St. Louis, Kansas City, Omaha, Minneapolis, Los Angeles, San Francisco, Portland and Seattle.

These mere pictures bespeak capacity, energy, capital and business success in a very emphatic way, and give safe assurance to their customers that whatever they undertake to do will be done. As to how it will be done and with what grade of material and workmanship the following three hundred pages of the catalogue exhibit in a most convincing way.

Of the general advantage to consumers of using their Standard Brass Valves the catalogue has this to say:—

"The Standard Valves are well proportioned, of good weight and suitable to stand a working-pressure of 100 pounds, and are tested to 100 pounds steam-pressure before leaving factory.

"The question is constantly being raised as to what material in Valves and weight of Valves are suitable for the different pressures that are used in engineering practice. In many cases ordinary Standard Valves are used for high pressures and there is no doubt they are sufficiently strong to stand the working-pressures, as we have at various times subjected them to an hydraulic pressure of 500 to 1,000 pounds without leaking; but, as stated above, we do not recommend them for more than 100 pounds working steam-pressure.

"It is not only a question of the Valves standing a higher pressure, but also standing the strain of expansion, contraction, weight of piping and settling, also the cutting effect of the steam on the disc and seat.

"It is, however, possible that the Standard Valves might be reasonably satisfactory for a working-pressure of 125 to 150 pounds, provided the expansion, contraction, weight of piping and settling were all taken care of.

"The construction of the Standard Globe and Angle Valves is such that they may be packed when open, without steam escaping. To do so, have Valve wide open.

"All users of Valves will appreciate the advantage in being able to repack a Valve without shutting off steam, as it frequently happens that it is necessary they be run continuously."

Crane Co. also issue catalogues of heavier goods and hydraulic goods.

GASOLENE.

THE Tirrell Gas Machine Co., No. 39 Dey St., New York, issues an unusually readable and instructive catalogue which gives information not only concerning the several kinds of apparatus it manufactures, but considerable matter of a generally informing kind. Amongst other things it gives the following account of the character and qualities of gasolene, and is led to do so because of the fact that gasolene is the base from which is derived the illuminating-gas which it is the object of the Company to furnish householders and manufacturers who are isolated from public gas-generating plants.

"Crude petroleum is mainly composed of kerosene oil and the various grades of light and heavy naphtha. These two constituents are mechanically mixed and not chemically combined. The naphtha is by far the lighter fluid. Hence, the application of heat to crude petroleum will vaporize and throw off, in the first instance, practically the whole body of naphtha, which, being again condensed into fluid, will contain in itself all grades and gravities of naphtha. Being re-distilled, this naphtha is separated and divided into various grades of naphtha, each having a distinct name to designate its suitableness for particular uses. Gasolene is one of these grades of naphtha. It rapidly evaporates in the open air. Hence, in a tight vessel, air passed over or through it will be impregnated with its vapor. This air, charged with the vapor of gasolene, is the gasolene-gas generated by gas-machines. It will be interesting to consider what may be called the mechanical structure of gasolene.

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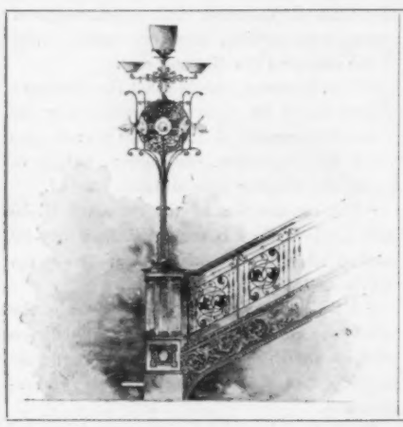

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dust. Let it be composed of particles of one thousand different but definite sizes, the largest mites being a thousand times coarser or more bulky than the smallest. With these two extremes of sizes are mixed and mingled all sizes of atoms from one to a thousand. Open a box of dust like this and a breath will throw a cloud of the minutest particles into the air, where they will be held in suspension. A beam of light let into a dark room shows that the whole atmosphere is charged with these minute atoms of dust held in suspension. Imagine naphtha or gasolene to be a mixture of liquid atoms of all these various sizes, although they are probably a thousand times smaller. These are all mixed together in one common mass. Some of them may be as small as the atoms of the very air itself. Expose such a liquid as this to the atmosphere. By molecular attraction the atoms of air instantly seize the smallest atoms of naphtha, and bear them away. The liquid is then composed of heavier atoms than it was before. The next lighter particles are then in like manner removed, and so continuously down, all the lighter atoms always going first, and leaving heavier ones behind. Observe how easily the air can "get at" each succeeding proportion of smaller particles, although they are interspersed through the whole mass of the naphtha, and, hence, many of them lie at the bottom of the liquid; for as a cork will rise to the surface of the water into which it has been immersed, so the lighter parts of the naphtha will continually rise to the surface as fast as the average gravity of the naphtha is sufficiently reduced below the gravity of any of its constituent parts. Hence, the air has no more difficulty in carrying off all the successively lighter atoms interspersed through the whole mass of the liquid than it would have if these atoms had been previously separated and placed on the surface in direct contact with the air. Observe, also, that as the fluid becomes continually denser by removal of each proportion of lighter atoms, the air has more and more difficulty in carrying away each successive quota of heavier atoms. The progressive action in the evaporation of gasolene or light naphtha by air is as though at the beginning, a single atom of air were able to find, seize and carry off a single particle of fluid of its own size. These being exhausted, we can imagine that it required two particles of air to lift one atom of the next larger size; then, three, four, five, and so on almost indefinitely. In this explanation the effect of temperature both of the air and of the gasolene is not considered, and it need only be said at present that the rapidity of evaporation, every other condition being equal, will be in a direct ratio to the temperature of the liquid, or of the air, or of the temperature of both.

"And from the foregoing explanation it must be easily seen that the gravity of gasoline is the average weight of countless mingled particles of fluid of different weights.

"The hydrometer tells the average gravity of the whole mass, and, so to speak, knows nothing about the separate gravity of any of its constituent parts.

"It records the density of the fluid precisely as if every atom were of the same size, and that size the exact average of the whole, as is illustrated in the gravity of water, in which, every atom being exactly like every other atom, the hydrometer forever shows an undeviating record.

"These facts concerning the nature of gasolene have an intimate connection with the operation of every gas-machine, and the qualities of the gas made by it.

"In fact, what we claim for our latest invention, the 'Equalizing' Gas-machine, is (in a simplified form), that it is made to fit the fluid that it is compelled to use. How the quality of the gas is affected by the physical character of the fluid has been explained in previous pages, and will be further understood by reading the little succeeding essay on 'Condensation.'

"Connected with the manufacture of gasolene these observations have also a practical bearing. The hydrometer may seem to show two barrels of gasolene to be of the same quality because the average gravity of the atoms in each exhibit the same record of average throughout, and yet for use in gas-machines these two barrels may be very considerably different. Which is the best depends on the system of manufacture. If one is composed of very heavy and very light particles to make up the average gravity, the heavy ones may be, in a gas-machine, left behind as useless residuum, incapable of being evaporated with sufficient rapidity, whereas in the other barrel none of the atoms may be as light and none as heavy as in the first, and yet, as a whole, they may be more capable of being evaporated in an ordinary gas-machine. The best character of gasolene of any given gravity depends on the skill of the manufacturer in applying carefully regulated heat to the body of naphtha from which the gasolene is first vaporized and then condensed into the fluid.

"In making more and more homogeneous gasolene all the manufacturers have greatly improved within the last few years, but it still varies very considerably in the respects named, as we have found by applying experimental tests.

"The use of inferior gasolene damages the reputation of gas-machines quite as much as it annoys the owners of the machines.

"We therefore supply our patrons with the very best gasolene, manufactured by the best known processes, and at the lowest cash prices charged by the refiners themselves."

NOTES.

WILLIAM E. QUINBY, Incorporated, No. 86 Liberty Street, New York, has issued two descriptive and illustrated catalogues. One is devoted to the Quinby house-service pumps and the other to the Quinby screw-pumps. The catalogue shows the various styles, and they can be had by any architect or builder on request.

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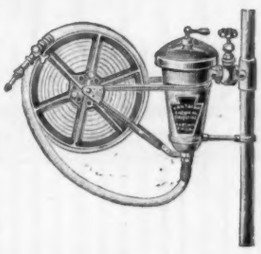

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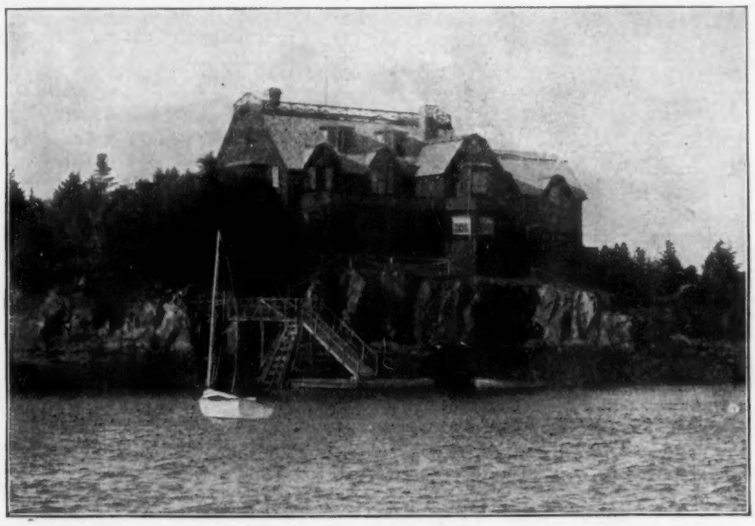

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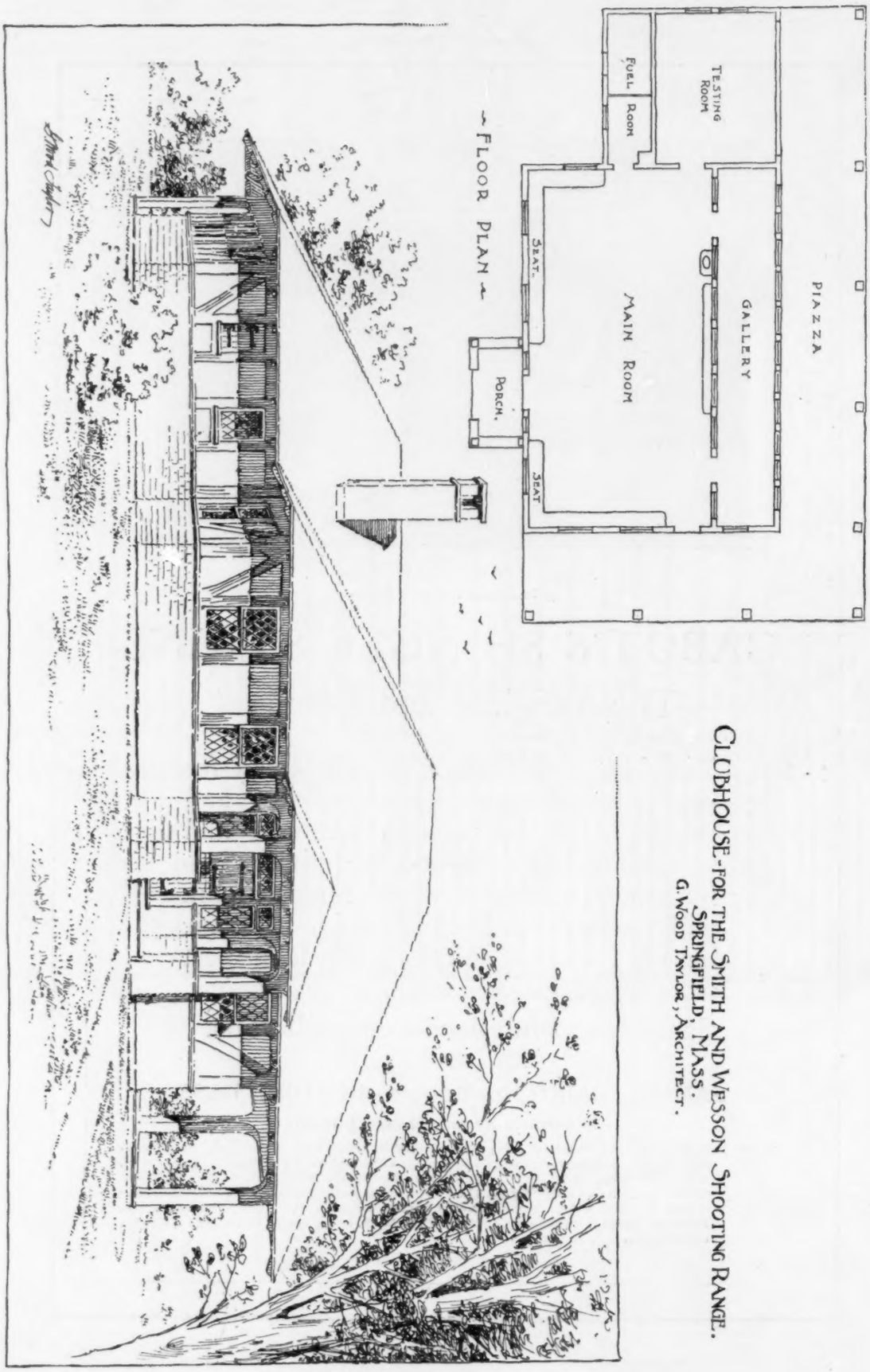

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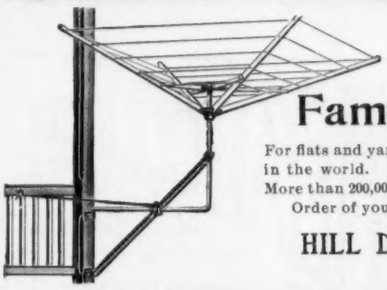

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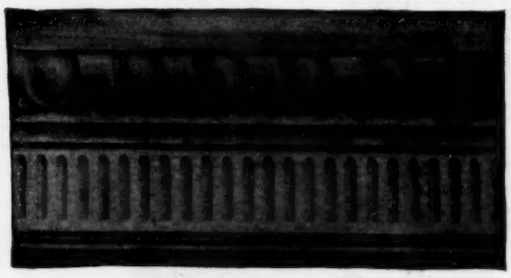

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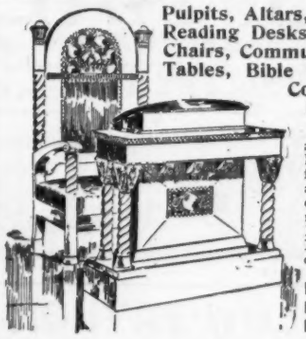

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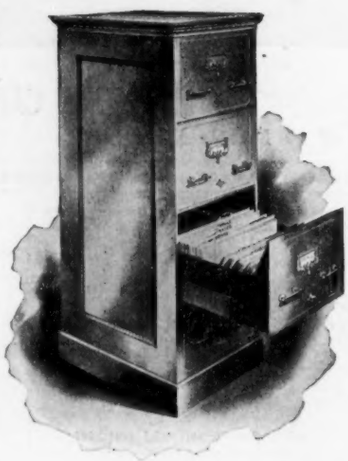

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IS PUBLISHED EVERY SATURDAY BY

The American Architect and Building News Co.,

211 Tremont St., Boston, Mass.

Advance Subscription Rates:

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

[Foreign Postage, $2.00 Extra.]

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

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

Address all business correspondence to the publishers direct.

Advertising Agents:

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

Agents at Large: —
Burrell & Fowler, 310 New England Bldg., Cleveland, O.

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BUILDING INTELLIGENCE.

(Reported for the American Architect and Building News.)

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

ADVANCE RUMORS.

Augusta, Me. — A three-story brick and stone office block, 40′ x 65′, will be erected at a cost of about $30,000 for the Augusta Real Estate Association, from plans furnished by John Calvin Stevens, architect, Portland.

Baltimore, Md. — Architect T. Buckler Cheguier, 227 St. Paul St., has completed plans for a new edifice at 3d St. and Chestnut Ave. for St. Luke's Lutheran Church. The new building will cost between $20,000 and $25,000 and will be of stone, two stories high, and measure 50′ x 70′.

Press reports state that a company has been formed for the purpose of erecting a seven-story modern apartment-house on Madison St. to cost about $75,000. E. F. Hanna, 22 Glen St., is one of the promoters.

The Building Committee of the Fulton Ave. Presbyterian Church has appointed Isaac Pursell, 119 S. 4th St., Philadelphia, as architect for the new structure to be erected at Fulton and Riggs Aves.; cost, $25,000.

Architect Thomas C. Kennedy, 113 N. Charles St., is receiving estimates on the new church for St. Paul's Roman Catholic parish. The building will be located at Caroline and Oliver Sts., and will be one and one-half stories high, measuring 70′ x 160′, of granite and Indiana limestone, red brick and terra-cotta, with slate roof, steam heat, electric light, oak finish, etc.; cost, $75,000.

A permit has been granted to Louis E. Bartell to erect a three-story brick feed warehouse at 417 N. Howard St., to cost $15,000.

Builders Cramp & Co., Philadelphia, Pa., have been awarded the contract for the fine new hotel to be built for Mrs. A. D. Atkinson, at 9th and Grace Sts., Richmond, Va. It will be an eight-story fireproof structure, of brick, granite and terra-cotta, 116′ x 146′, and will cost $450,000.

Boone, Ia. — The public building appropriation for this place is $100,000 for building and site.

Burlington, Vt. — A building to cost $170,000 is authorized by Congress to be erected on site heretofore acquired.

Colorado Springs, Col. — Congress has appropriated $135,000 for public building and site at this place.

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BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

Cumberland, Md. — H. G. Davis has given funds for the erection of a brick and stone hospital. Charles E. Cassell, Law Building, Baltimore, will prepare the plans.

Denver, Col. — The announcement is made that the Boston holders of the Denver City Tramway securities have formed a syndicate to erect a $250,000 office-building and theatre on the tramway company's property, where all the lines intersect.

East Orange, N. J. — The Orange Safe Deposit and Trust Co. has purchased the Story property on Main St., and the Williams property on Ashland Ave. The Story property is 50 feet west of Ashland Ave., and has a 200-foot frontage. The other plot is 50 feet long. The purchase price is said to have been about $30,000, and it is said the land will very likely be used as a site for the proposed new Masonic Temple, which is to be erected by Hope Lodge, Free and Accepted Masons. The structure will cost $150,000.

A club has been organized in this city called the Fifth Ward Club, and arrangements are being made toward the building of a club-house, to cost $15,000.

Emporia, Kan.—The Government has appropriated $41,000 for a public building here.

Exeter, N. H. — Edmund L. Bayles, ex-president of the Phillips Exeter Academy Alumni Association in New York City, has informed the academy trustees that he will be one of five to contribute the necessary $150,000 to complete the alumni hall. Toward the new building $50,000 already has been given, and its completion is looked for next year. A new athletic building will be erected on the campus during the next school year, at a cost of between $1,500 and $2,000. Prof. Wm. A. Francis already has plans drawn for the new house.

Guthrie, Okla. — $160,000 has been appropriated for a public building.

Hartford, Conn. — Architect Edw. T. Hapgood has completed plans for a two-story brick and shingled residence, 26′ x 80′, to be erected on Arnoldale Road for Edgar L. Ropkins, of Ropkins & Co. Steam heat, hardwood finish, and cost $20,000.

Holyoke, Mass. — Congress appropriates $135,000 for public building and site at this place.

Kansas City, Mo. — The old custom-house in this city will be sold and the proceeds used for the completion of the new building.

Lenox, Mass. — General contract has been awarded G. Clifford's Sons, builders for the fine two and one-half story frame residence, 68′ x 96′, to be erected here for James Shields Clarke, Esq., from plans furnished by New York architects. Cost will aggregate $50,000.

Melrose, Mass. — The aldermen at a recent meeting passed an order, introduced by Alderman Hill, that a public library building be erected on the old high school lot on Emerson St., that the mayor be authorized to contract for the same at a cost not to exceed $25,000, and that the city treasurer be authorized to pay all sums of money which may be presented or paid to the city, either directly or to its mayor, treasurer or other public officer, by Andrew Carnegie, or any person or persons, for the purpose of constructing the library building, to be paid out on account of the contract to build it, by the city treasurer, from time to time, as received and required.

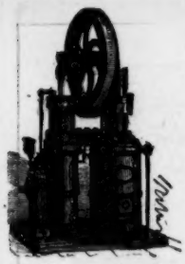
New Bedford, Mass. — A large four-story brick addition to present plant of the Butler Mills Corporation including a one-story weave shed, will be erected from plans now in preparation by W. S. Wholly, engineer, 1012 Tremont Building, Boston. Cost, about $700,000.

New London, Conn.—A 15-room brick school-house, 73′ x 140′, will be erected here from plans furnished by Donnelly & Hazeltine, architects. Cost, about $45,000. F. S. Newcomb is chairman of building committee. Plans now being figured.

New York, N. Y. — Frederick W. Vanderbilt, who owns the brownstone house at the southeast corner of 40th St. and 5th Ave., intends to remodel it and make it his home. It has been leased to others for a year or two. The plot is 56′ 8″ x 125′.

Plans have been filed at the Bureau of Buildings, Manhattan, for alterations to the Mills Building at 35 Wall St. The alterations are as follows: The present ninth floor is to be continued to front part. The eighth story front is to be removed and new terra-cotta front put in from the eighth to tenth story. D. O. Mills, of 634 Fifth Ave., is the owner, and J. M. Robinson, of 15 Broad St., is the architect. The cost of alteration is placed at $40,000.

Plans have been filed at the Bureau of Buildings,



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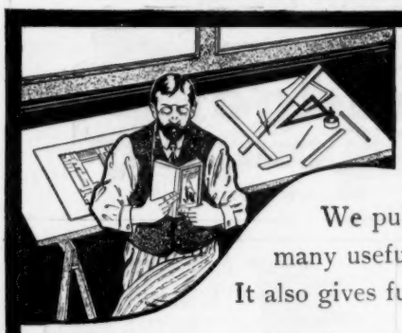

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Manhattan, for an eleven-story brick office-building to be erected at the northwest corner of 14th St. and 5th Ave., which corner was formerly occupied by the Old Guard Armory and Delmonico's. The building will have a frontage of 103′ 3″ on 5th Ave., by a depth of 100′ in 14th St. The Van Buren estate is the owner of the ground and Henry Corn, of 142 Fifth Ave. is the lessee. R. Maynicke, of 725 Broadway, is the architect. The cost is placed at $500,000.

The Omnibus Public Buildings Bill authorizes a commission consisting of the Secretary of the Treasury, the Postmaster General and the Attorney General to select a site for a new post-office building in the Borough of Manhattan. No limit of cost is placed on the site to be selected. The only condition attached to it is that it shall consist of a block or square. On the selection of the site the commission is to report to Congress its location and dimensions, with an estimate of the cost of the buildings to be constructed thereon and the character and style of architecture of such buildings.

The limit of cost of the new custom-house is increased from $3,000,000 to $4,000,000.

Orange, N. J. — The Orange Board of Education has requested the Board of School Estimate to appropriate $42,000 for the purchase of a site and the erection and furnishing of an eight-room school-building. The site chosen by the Board is at Berkeley Ave. and Berwick St., and has a frontage of 158 feet in Berkeley Ave. and a depth of 301 feet. The price of the property is $14,000.

The congregation of the Orange Methodist Episcopal Church has decided to erect a new building, and plans will be drawn and a site selected as soon as subscriptions of a sufficient amount to warrant the undertaking are received.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Paterson, N. J. — John W. Ferguson is stated to have secured the contract for rebuilding the Hamilton Club-house, for about $100,000.

Portland, Ore. — It is stated that Henry Weinhard will erect a five-story business building on 4th, Oak and Pine Sts., to cost about $250,000.

Providence, R. I. — The Davol Rubber Co. has plans in progress for an addition to its rubber manufacturing plant. It will be of brick, four stories, 76′ x 115′, and cost $30,000.

The corner-stone of the new Italian Baptist Chapel on Marietta St. was laid a few days ago. A congregation of upward of 200 people was present, most of whom are residents of the neighborhood.

Plans of the new station at the corner of India and S. Main Sts. have been completed, and the contractors will begin work in a few days.

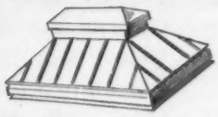
Quincy, Mass. — The City Council has voted an appropriation of $13,000 for remodelling the interior of the City-hall.

Richmond, Va. — Plans for a $500,000 seven-story brick, stone and fireproof apartment building, 160′ x 185′, to be erected at Main and 5th Sts., have been prepared by Sunderland Bros., 618 Twelfth St., Northwest, Washington, D. C.

Roxbury, Mass. — A permit has been granted to the Roxbury Masonic Association, 2307 Washington St., for the erection of a three-story assembly hall, 75′ x 105′, brick and terra-cotta, from plans of Edwin H. Oliver, 120 Tremont St. Builder, M. S. & G. N. Miller, 166 Devonshire St., Boston. Estimated cost, $40,000.

Salem, Mass. — Report states that the Morrill Leather Co., tanners of sheepskins, has purchased seven acres of land in this city, on which it will build a big plant. It operates two factories here, one in

Metal Skylights



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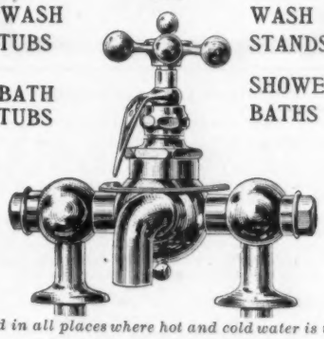

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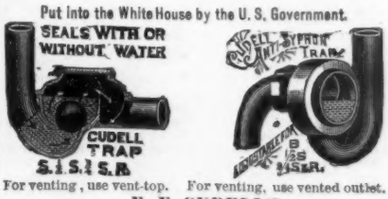

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Peabody and one in Bucksport, Me. It is intended to consolidate all in this plant.

Salt Lake City, Utah. — It is stated that plans for the new Brigham Young Memorial Building of the Latter-Day Saints' Univ. are about completed; cost, $35,000.

San Francisco, Cal. — The cost of the new custom-house to be erected here will be $700,000.

Santa Monica, Cal. — H. X. Goetz has secured the contract for erecting the city-hall for $34,300.

Saratoga, N. Y. — Richard A. Canfield, of New York, is reported to have had plans prepared for a club-house to cost $250,000.

Scranton, Pa. — L. C. Holden, 1133 Broadway, New York City, has plans for a three-story brick and stone club-house, 31′ x 78′, for the Young Men's Christian Association. W. W. Adair, secretary. Cost, $25,000.

Sewickley, Pa. — The plans of T. E. Bilquist, Stevenson Building, Pittsburgh, have been accepted for a $30,000 Y. M. C. A. building.

Sherman, Tex. — The appropriation for public building and site at this place is $100,000.

Shreveport, La. — Thos. Sully, of New Orleans, is stated to have been selected to prepare plans for the Charity Hospital, to cost about $75,000.

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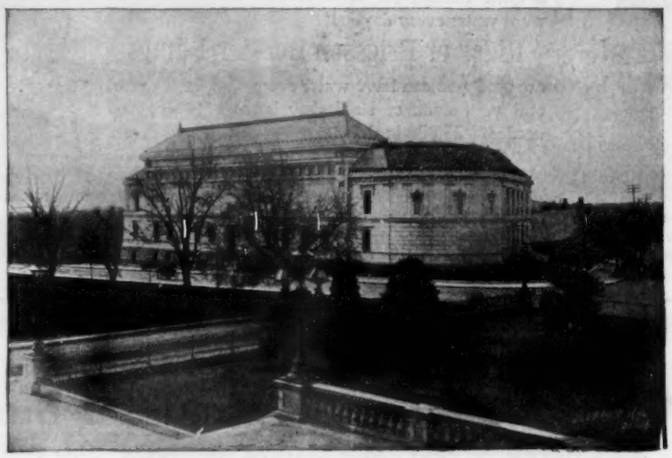

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Skowhegan, Me. — L. W. Weston will erect at once two mill buildings which will be leased to the Marston Worsted Co. in order to afford the latter concern better facilities for meeting the demand for goods.

Southbridge, Mass. — The citizens of this town have voted to reject an offer of $20,000 from Andrew Carnegie to erect a public library, because Jacob Edwards of Boston, a native and former resident of the town, has offered to give a library building and site upon which to erect the same, at a cost of $50,000. A vote of appreciation of Mr. Carnegie's generosity and good will has been passed.

St. Louis, Mo. — Stonemasons, under the direction of Architect A. B. Frankel, have completed the foundation for the R. A. Richardson building at the corner of St. Louis and Collinsville Aves., East St. Louis. The structure will be the largest store building on the east side, and when completed will have cost the owner over $100,000. The structure will have a narrow frontage on Collinsville Ave., but on the St. Louis Ave. side it will contain rooms for nearly every class of store. The upper stories have been arranged to suit the convenience of the societies, doctors, dentists, lawyers, etc.

The entire three-fourths block fronting 12th, 13th, Locust and St. Charles Sts. has been purchased by the Mutual Realty Co., a local syndicate of capitalists, who will shortly begin the erection of one of the largest commercial houses in this city.

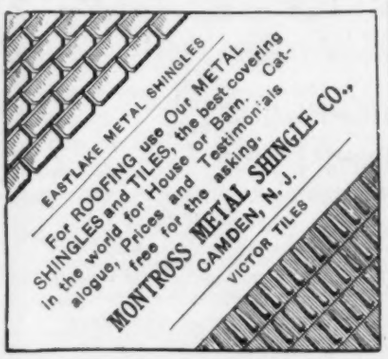
The furniture and kindred interests of this city are to be represented in a new building that is to be erected at the southwest corner of 14th and Locust Sts., just opposite the exposition building. The proposed building is to be put up by the Western Manufacturers' Building Co. and is to be known as the furniture exhibition building, a large portion of which is to be used as a permanent exhibit of furniture by the wholesale dealers, who will make it a salesroom. The structure is to occupy the site of the residence of the late Senator Polk, and it will be an eight-story and basement, slow-combustion building, designed by H. E. Roach & Son, architects. The exterior will be of red stock brick front, and the entire building is to be equipped with the sprinkler system, making it in every respect an up-to-date modern business building.

Plans for a three-story brick, stone and terra-cotta parochial school-house, 80′ x 80′, to be erected by St. Leo's Catholic Church, at a cost of $50,000, have been prepared by Barnett, Haynes & Barnett, 318 N. 8th St.

A syndicate composed of clients of the Lincoln Trust Co. is planning to erect a fine hotel at the northeast corner of Olive St. and Jefferson Ave., having just closed a lease of the property on that corner. The syndicate contemplates erecting a five or six story hotel building, with all modern improvements in the way of heating apparatus, ventilation, lighting and plumbing.

Plans for a large bakery building to be erected for A. A. Condon on the southwest corner of 23d St. and Clark Ave. have been drawn by Matthews & Clarke, who are receiving bids from contractors for the erection of the building. The structure will cover a lot 125′ x 135′, will be two stories high, with a basement story, and is expected to cost about $50,000. The street fronts will be of gray brick with stone trimmings, and the building will be supplied with a steam plant for power and heat. A large system of ovens has been designed and the bakery is to be one of the most complete in the city.

A factory building for the Mound City Coffin Co. to be erected at the northwest corner of Main and Chamber Sts., adjoining the present buildings of the company, has been designed by H. G. Clymer. It will be four stories high and basement, on a lot 68′ x 96′, and the cost will be about $20,000.



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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Plans for a warehouse to be erected for Henry Sayers at the northeast corner of Main and O'Fallon Sts., have been drawn by Matthews & Clarke, architects. The building is to be three stories high, on a lot 40′ x 130′, and is to be used for the commission business. Work is expected to begin soon, with the intention of having the building completed in about 90 days. The cost will be about $12,000.

Congress provides for a new post-office site and building here, the limit of cost of both being $550,000.

St. Paul, Minn. — The Burlington, Cedar Rapids & Northern Ry. has completed plans for a freight-house, to be erected on the west side, to cost about $40,000.

The Board of Aldermen has passed an ordinance authorizing the erection of an armory, to cost about $98,500.

Tarrytown, N. Y. — The general contract has been awarded the A. M. Burritt Building Co., Bridgeport, Conn., for proposed three-story stone and wood dormitory to be erected for the Hackley School; cost, about $30,000. Plans by Wheelwright & Haven, architects, 100 Boylston St., Boston.

Titusville, Pa. — Jackson, Rosecrans & Canfield, New York City, have completed plans for a new library building, to be erected for the township. Brick, terra-cotta and granite are specified. The cost is $20,000, and bids are being received by R. O. Benson, 12 Broadway, who is the custodian of the memorial fund for the building.

Topeka, Kan. — It is stated that a pressed brick addition is to be built to the Kansas Medical College; cost, $11,000.

Washington, D. C. — The White House, it is said, is to have a thorough renovation on artistic lines. To defray the expenses of this undertaking an estimate of about $30,000 was submitted to Congress, and it is reported that the sundry civil bill contains the necessary allotment.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

The Chamber of Deputies, Rome, has approved, without discussion, the purchase of a building here, to be occupied by the members of the Italian Embassy.

Bills have been passed in the Senate providing for the purchase of a site and erection of a public building thereon in this city to be used for a hall of records and indicating an appropriation of $1,000,000 for the purchase.

Section 6 of the Omnibus Bill provides for acquiring land for a municipal building and site here, both to cost $1,500,000.

The award has been made in the final competition to secure plans for the municipal hospital to Frank Miles Day & Bro., of Philadelphia. The unsuccessful architects are each to receive $1,000. Of the successful firm, Mr. Frank Miles Day is one of the national officers of the American Institute of Architects, and is president of the local chapter in Philadelphia.

Waterville, Me. — Mayor Blaisdell has received a letter from Mr. Andrew Carnegie's private secretary, in which Mr. Carnegie offers this city a free public library building, to cost $20,000, under the usual conditions imposed by him in similar gifts.

West Newton, Mass. — Harry L. Burrage, vice-president of the Eliot National Bank, of Boston, is about to build a new residence on Temple St. near the Boulevard. The architects are Chapman & Frazer, 8 Exchange Pl., Boston, and the general contractor William Kellar, 174 Webster St. The first story is to be of cobbled stone with shingled superstructure. A stable to accommodate 6 horses will also be built. The entire cost will be over $25,000.

Wheeling, W. Va. — The appropriation for public building and site here is $400,000, present quarters to be sold.

ALTERATIONS AND ADDITIONS.

Brooklyn, N. Y. — *Fulton St.*, nr. Grand Ave., three-st'y bk. front extension to theatre, 20′ x 82′; $25,000;

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(*Alterations and Additions Continued.*)

o., Corse Payton, 143 Ross St.; a., Fuller & Claflin, 1133 Broadway, N. Y.

New York, N. Y. — *Wall St., No.* 35, extend ninth story to front; $40,000; o., D. O. Mills, on premises; a., J. M. Robinson, 15 Broad St.

APARTMENT-HOUSES.

Brooklyn, N. Y. — *Brooklyn Ave.*, cor. Dean St., four-st'y bk. flat, 24′ 6″ x 93′, gravel roof, steam; $28,000; o., J. A. Bliss, 6 Reeve Pl.; a., White & Roosin, 189 Montague St.

Clinton St., nr. Fulton St, twelve-st'y bk. apart., 65′ x 70′, steam; $250,000; o., Louis J. Horowitz, 186 Remsen St.; a., F. S. Lowe, 186 Remsen St.

Chicago, Ill. — *Washington Ave., Nos.* 5018-20, three-st'y apart., 50′ x 74′; $27,000; o., K. B. Williams; a., L. E. Stanhope, 184 La Salle St.; b., Geo. Williams & Co., 92 La Salle St.

Calumet Ave., Nos. 4100-2, and *Forty-first St., Nos.* 538-40, 2 three-st'y aparts., 50′ x 125′; $35,000; o.,

BUILDING INTELLIGENCE.

(*Apartment-Houses Continued.*)

J. W. Dowd, 4326 Wabash Ave.; a., Z. T. Davis, Unity Building; b., John C. Barrett, 479 E. 61st St.

New York, N. Y. — *Second Ave.*, n w cor. 12th St., nine-st'y bk. & st. flat & stores, 61′ 3″ x 73′, felt & gravel roof; $150,000; o., Berman & Moskowitz, 340 E. 4th St.; a., Harde & Short, 3-5 W. 29th St.

One Hundred and Thirty-seventh St., nr. 8th Ave., six-st'y bk. & st. flat, 45′ x 86′ 11″ & 74′ 5″, plastic slate roof; $55,000; o., Louis and John Brandt, 1270 Amsterdam Ave.; a., John Brandt, 1270 Amsterdam Ave.

STABLES.

Brooklyn, N. Y. — *Ocean Parkway*, nr. Avenue O, 1½-st'y fr. stable, 75′ x 98′ 6″, shingle roof; $5,000; o., James Neilson, on premises; a.; A. D. Isham, 220 Broadway, N. Y.

Kent Ave., nr. Nassau St., one-st'y bk. stable, etc., 25′ x 125′, gravel roof; $1,700; o., E. T. Jenkins, 881 Park Ave.; a., H. Smith, 836 Broadway.

PROPOSALS.

SCHOOL-HOUSE.

[At Beverly, Mass.]

The joint special committee having in charge the building of a school-house at Ryal Side will receive separate sealed proposals for work on said school-house as follows: 1. For the foundation and excavating work. 2. For the brick mason work. 3. For the carpentry work. 4. For the plumbing. Plans and specifications may be seen at the office of the Clerk of Committees, City-hall, Beverly, daily from 10 A. M. to 12 M., and from 2 to 5 P. M. All proposals must be deposited in the office of the Clerk of Committees, City-hall, Beverly, **before May 13, 1902.** JEREMIAH FOSTER, Chairman. WILLIAM A. LEE, Clerk of Committees. 1375

SEWERS.

[At Mansfield, O.]

The city clerk will receive bids **until May 10** for the construction of sanitary sewers in portions of three streets. F. M. REMY, City Clerk. 1375

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PROPOSALS.

SEWER. [At Washington, D. C.]

Sealed proposals will be received at the office of the commissioners of the District of Columbia **until May 17** for completing the extension of the Boundary sewer. Specifications and blank forms of proposals may be obtained at this office. HENRY B. F. MACFARLAND *et al.*, commissioners, D. C. 1376

Treasury Department, Office of the Supervising Architect, Washington, D. C., April 25, 1902. Sealed proposals will be received at this office until 2 o'clock P. M. on the 21 day of June, 1902, and then opened, for the construction (including plumbing, heating apparatus and electric wiring and conduits) of the Hygienic Laboratory of the U. S. Marine Hospital Service, at Washington, D. C., in accordance with drawings and specifications, copies of which may be had at this office at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1376

Treasury Department, Office of the Supervising Architect, Washington, D. C., April 26, 1902 Sealed proposals will be received at this office until 2 o'clock P. M., on the 10th day of June, 1902, and then opened, for the completion (except certain steel vaults, plumbing, elevators, heating apparatus, electric wiring and conduits) of the U. S. Mint at Denver, Colorado, in accordance with drawings and specification, copies of which may be had at this office, or at the office of the Superintendent at Denver, Colorado, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1376

Treasury Department, Office Supervising Architect, Washington, D. C., April 24, 1902. Sealed proposals will be received at this office until 2 o'clock P. M. on the 29th day of May, 1902, and then opened, for the installation of a conduit and wiring system for the U. S. Post-office building at Oskaloosa, Iowa, in accordance with the drawings and specification, copies of which may be obtained at this office or at the office of the Superintendent of Construction at Oskaloosa, Iowa, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1376

DORMITORY. [At Rapid City, S. D.]

Department of the Interior, Office of Indian Affairs, Washington, D. C. Sealed proposals will be received at this office **until May 22, 1902**, for furnishing the necessary materials and labor required to construct and complete one brick dormitory with plumbing and acetylene gas piping at the Rapid City School, S. D., in strict accordance with plans, specifications and instructions to bidders. For further information apply to Sam B. Davis, superintendent. W. A. JONES, commissioner. 1376

STABLE. [At Ft. Greble, R. I.]

Sealed proposals will be received at the office of Thomas H. Slavens, Constructing Quartermaster, Newport, R. I., **until May 17** for constructing frame stable for 8 horses and wagon-room, at Ft. Greble, R. I. Information furnished upon application. 1376

SCHOOL-HOUSE. [At Center Strafford, N. H.]

Sealed proposals for the construction of a two and one-half story wooden school-house at Center Strafford, N. H., will be received by the trustees of Austin Academy through their duly authorized agents, H. S. Hill, C. M. Hill and J. H. Stiles, of Center Strafford, **until May 21st, 1902.** Plans and specifications may be obtained at the office of the architect, J. Edw. Richardson, 56 Grove St., Dover, N. H., or may be seen on file at the store of C. M. Hill, Center Strafford. Bids should be addressed H. S. Hill, Chairman of Building Committee, Center Strafford, or at the architect's office on or before May 21, 1902. HIRAM S. HILL, Chairman, Center Strafford, N. H. 1376

CHURCH. [At Parkston, S. D.]

Sealed proposals will be received by the undersigned **on or before May twenty-first (21)**, for the erection of a brick church building for the congregation of the Sacred Heart, at Parkston, S. D. Bids are invited both for the building complete, as well as for the separate parts, according to the plans and specifications which may be seen at the office of Jos. Schwarz, architect, Sioux Falls, S. D., or with the undersigned. REV. J. J. REILAND, Parkston, S. D. 1376

ALTERATIONS. [At Hartwell, O.]

Bids are wanted by the Board of Public Service, Cincinnati, **until May 19** for alterations at the City Infirmary, Hartwell, including brick work, concrete construction, plumbing, etc. ROB'T ALLISON, Pres. GEO. F. HOLMES, Clk. 1376

COURT-HOUSE. [At Blackshear, Ga.]

Bids are wanted **May 15** for erecting a court-house. J. I. SUMMERALL, Co. Ordinary. 1376

SEWERS. [At Anderson, S. C.]

Sealed proposals will be received by the Sewerage Commission of Anderson, S. C., **until May 27th, 1902**, for constructing pipe sewers and for furnishing sewer pipe. Extent of proposed works is approximately 11½ miles of pipe sewers from 8 to 18 inches diameter. For specifications, forms of proposals, etc., address the Engineer at Winston, N. C., or the Clerk of the Commission at Anderson, S. C. ROBERT E. LIGON, Chairman. B. C. MAXWELL, Clerk. Engineer, J. L. LUDLOW, Winston, N. C. 1377

Treasury Department, Office of the Supervising Architect, Washington, D. C., April 21, 1902. Sealed proposals will be received at this office until 2 o'clock P. M. on the 27th day of May, 1902, and then opened for the construction (except heating apparatus, electric wiring and conduits) of the U. S. Post-office at Creston, Iowa, in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Postmaster at Creston, Iowa, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1375

Treasury Department, Office of the Supervising Architect, Washington, D. C., April 21, 1902. Sealed proposals will be received at this office until 2 o'clock P. M., on the 28th day of May, 1902, and then opened, for the construction, including heating and electric wiring of the U. S. Post-office at Fitchburg, Mass., in accordance with drawings and specification, copies of which may be had at this office or at the office of the Postmaster at Fitchburg, Mass., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1375

SEWER. [At Milton, Mass.]

Sealed proposals will be received at the office of the Metropolitan Water and Sewerage Board, 1 Ashburton Pl., Boston, Mass., **until May 14, 1902**, for building Section 61 of the High-level Sewer in Milton, in accordance with the form of contract and specifications to be furnished by the Board. Plans can be seen and specifications and form of contract can be obtained at the above office, or at the office of the Engineering Dept., Pemberton Building, Boston, Mass. HENRY H. SPRAGUE, HENRY P. WALCOTT and JAMES A. BAILEY, JR., Metropolitan Water and Sewerage Board. WILLIAM M. BROWN, Engineer Sewerage Works. WILLIAM N. DAVENPORT, Secretary. 1375

BRIDGE. [At Crookston, Minn.]

Sealed proposals will be received by the city clerk of the city of Crookston, Minn., **until May 13, 1902**, for the construction of a steel highway bridge across Red Lake River, on Main St., in said city. Plans and specifications may be seen at the office of the city engineer. W. A. LANCTOT, City Clerk GEO. A. RALPH, City Engineer. 1375

BUILDING. [At Mare Island, Cal.]

Bids are wanted **May 24** for constructing a brick and steel building at the navy yard, Mare Island, Cal. Appropriation, $92,400. MORDECAI T. ENDICOTT, Ch. Bureau of Yards and Docks, Navy Dept., Washington, D. C. 1376

SEWERS. [At Birmingham, Ala.]

Sealed proposals addressed to Maj. F. Y. Anderson, President, will be received by the Jefferson Co. Sanitary Commission, at their office in the Co. Court-house, **until May 20th, 1902**, for constructing approximately fourteen and three-quarter (14¾) miles of trunk sewers from four to five feet in diameter. Specifications may be obtained and plans examined at the office of the Chief Engineer. JULIAN KENDRICK, Chief Engineer. 1376

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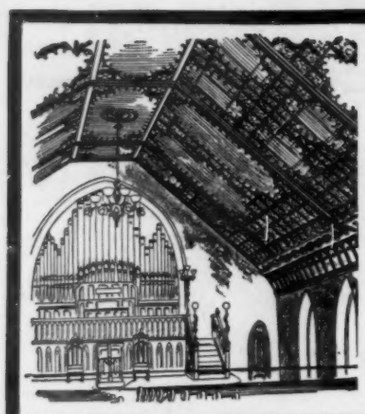

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