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CONTENTS.

THE necessity of new terms in common use and in law to discriminate new things was illustrated in a recent suit at law in New York, where a decision turned, as it has in some other quarrels, on the question whether what is called an apartment-house is a tenement-house. Mrs. Musgrave had bought a house on Fifth Avenue from Mr. Sherwood half a dozen years ago, on the condition, stipulated in the deed, that no nuisances or tenement-houses should be put upon the adjoining land, which was occupied by houses belonging to Mr. Sherwood; and on the understanding and agreement, as she claimed, that only private residences should be allowed there. Lately Mr. Sherwood had turned the two adjoining houses into an apartment-house or family hotel, and had begun to build on the party-wall next Mrs. Musgrave, who then sued for an injunction to restrain him. Three points were claimed by her counsel, — that, the party-wall being completed when she bought her interest in it, he had no right to build it higher; that the stipulation in the deed against a tenement-house estopped him from building an apartment-house; and that the verbal agreement obliged him not to occupy the land with any thing but private dwellings. It is easy to see that the first point, if sustained by the court, would give rise to endless embarrassments among neighbors; but the judge (Judge Van Vorst) ruled that either joint owner of a party-wall may extend it upward or downward at his pleasure, provided he does no injury thereby to his neighbor's property. The verbal agreements were ruled out as irrelevant; and in regard to the second point the Court decided that as a tenement-house was defined by statute to be a house occupied by three or more families independently, while in the apartment-house the cooking and washing were done in common, the apartment-house was not a tenement-house. The decision, whatever may be its importance in law, plainly leaves the real issue untouched; for the disagreeable thing in a tenement-house is not the fact that its occupants eat together or apart, but the number and kind of neighbors it brings. The beginning of this suit and the granting of the first injunction, which is now dissolved, was noticed in a letter of our New York correspondent in No. 89 of this journal.

THE ingenuity of the counsel in this case is as nothing in comparison with that of the contractor who agreed to build the foundation of the dome of the famous and farcical Chicago Court House, and who having begun to build will not be stopped, but continues building upward, claiming that the foundation of the dome extends above the roof of the building. This aspiration so displeases the tax-payers that they talk of enjoining the Board of Commissioners and putting the Court House into the hands of a receiver, in case the contractor's claim for compensation is allowed. This occurs, as we understand it, in the County's half of the building, but we will not be too sure.

THE proposed building-law for the city of Providence, which is before the Legislature of Rhode Island, and of which we have spoken before (*American Architect*, No. 60), seems to be having a struggle for existence. It has apparently developed a good deal of opposition among a class of builders who like to build just as they please, and who are not deterred by any respect for their calling from appearing at a legislative hearing to oppose such provisions as those that require the testing of cast-iron girders, or that the cellars of houses built on made land should be concreted, or that wooden buildings more than eighteen feet high should not be built in the business part of the city, — which last provision one of the remonstrants naïvely argued did not seem to apply to a wooden city like Providence. The low opinion held in some quarters, of our profession and one nearly allied to it, appeared in the remarks of a builder who objected that the bill put the control of building into inexperienced hands, by referring it to architects and engineers, instead of mechanics and builders, who understood the business. Notwithstanding the fact that the public is indebted to architects and engineers for most of the improvements in building that have been made of late years, it is pretty sure that there is little hope of passing building-laws in any cities through their influence alone. But the better class of builders everywhere are concerned in the advancement of good building, and it is encouraging to know that in Providence they have taken a good part in preparing and forwarding the law.

ANOTHER example of the insecurity of iron construction, as it is commonly used, is the fall of a roof in Cambridge, Mass., just before we write. The iron roof over the furnace-room of the New England Glass Works fell down suddenly without warning. It was a hundred feet long and ninety feet in span, put up seventeen years ago, and has lasted perhaps as long as with our present habits of construction any piece of ordinary iron-work can be expected to refrain from falling. Fortunately no one was under it, and since nobody was hurt it is not likely that any great notice will be taken of the accident; but it is none the less a warning. The theories behind which ignorance takes refuge to avoid confession are fairly instanced in that which has been put forward in this case; viz., that the furnaces being out for some weeks, the iron girders [or trusses] had so contracted with the cold as to draw away from their bearings. A rough computation is enough to show the absurdity of such a supposition. If we take the co-efficient of expansion of wrought iron at .000007, which is large, and suppose that the temperature was 70 degrees below that at which the roof was set up, we have a contraction of $.000007 \times 70 = .00049$, which, since the span was ninety feet, gives $.00049 \times 90 = .044$ feet, or about half an inch. This makes it unnecessary to inquire whether the roof had never been allowed to get cold before, and whether it was built with the expectation that it never would. We have as yet learned nothing of the manner or circumstances of the building of it, and so have no opinion to give about it; but we know, what every engineer or architect of any length of practice can confirm from his own experience, that the majority of the men who design iron constructions in this country are deplorably ignorant of the properties and use of the material they employ; in spite of which they have the confidence of employers, on the ground that they are practical men.

THERE are no buildings to which the sanitary reformer can better direct his attention than to public school houses. They are usually built according to the worst traditions of an inconsiderate economy mingled with an inconsiderate expense. They are often elaborate and costly, but are almost always contracted in plan, unduly crowded, containing five or six schools where they should hold but two or three, shot up into the air one or two stories too high, and with the youngest and most helpless pupils packed into the upper rooms. They are badly ventilated, their plumbing and water-closets carelessly arranged, and are constructed without any regard to security against fire; the partitions and staircases being always of wood, and the means of egress in the older ones often very inadequate. A late report of Inspector Russell to the New York Board of Health shows a very unfortunate condition of the primary schools in one district of the city. It is a pretty uniform story of bad light, bad ventilation, bad drainage, bad arrangement, and bad administra-

tion. The wash-basins were generally untrapped, the water-closets and privies dirty and neglected. In one place the sewer overflowed the cellar, in another the open junction of the rain-spout with the sewer gave a chance for gas to escape under the windows, in another the opening of the door of a class-room barred the upper flight of stairs. What with bad sewers, unclean tenement-houses, and unwholesome school-houses, there is in New York a rich soil for the growth of sanitary improvements.

We have more than once spoken of Mr. LaFarge's decoration of Trinity Church in Boston, and have published lately a description of his work at St. Thomas's in New York. In an article in the Midwinter number of *Scribner's Monthly*, on "Recent Church Decoration," which is a description and criticism of these two undertakings, Mr. Clarence Cook records "a little natural disappointment to find how small a part as yet Mr. LaFarge's individual work plays in the interior" of Trinity Church, and complains that "the debt we owe to Mr. Cottier in this church has never been so much as hinted at in any thing that has been printed about it." There is no doubt, we believe, that Mr. LaFarge derived much benefit from such technical suggestions as Mr. Cottier's experiences in mural painting (which was a new process to Mr. LaFarge) enabled him to give in the course of two short visits to the church, and from having at his disposal, for the mechanical part of the work, men who had been trained under Mr. Cottier's hand; but it is equally true that no work of Mr. Cottier's design or execution is to be found in Trinity Church. It might properly have been said that Mr. LaFarge's original *hand*-work played a comparatively small part in the decoration; for he shared the execution of the figures, which it would have been impossible for him to have painted himself in any time that would have been allowed him, with the three artists whom we have before mentioned, Messrs. Millett, Lathrop, and Maynard; and of the purely decorative work he painted little. Nevertheless the figures were all painted from sketches by his own hand; and in the same way the decorative details — designed mostly by Mr. Lathrop — were in accordance with his sketches to a small scale for the whole interior. Since, then, the whole scheme of decoration, the arrangement of color, and the design of all the figures, is his, as well as a considerable part of the actual hand-work; to conclude that his share in the undertaking was a small one, — as, whatever was the writer's intention, a reader who derived his impression from the article we mention would be sure to conclude, — would be a great injustice to Mr. LaFarge.

The thing which strikes us first in Mr. Cook's criticism, and which deserves mention because it is characteristic of most of the criticisms on artistic work with which the public is supplied by literary men, — especially on such work as the architecture and decoration of a large building, — is the completeness with which it misses the purpose and point of view of the artist. Mr. LaFarge's work was essentially one of decoration, and as decoration first of all it should be criticised. Here was a large interior of many parts combined in a clear and simply arranged but elaborate composition. He had to provide a decoration which should adapt itself to all the parts, and confirm the whole impression of the architecture. As decoration, in arrangement, in form, and above all in color, it should be beautiful; should harmonize with the feeling of the architecture; and should have its own expression of dignity and religious solemnity. The figure-painting should, in keeping with all the rest, have its peculiar qualities of expression and technical merit. The paper in *Scribner* gives some intelligent criticism of the conception of the paintings as pictures, and finds some fault with the iconographic scheme, which, however, is as yet too incompletely seen to be the subject of criticism; but though it is a paper on decoration, of the decoration it says nothing. Even the prominent key-note on which the whole color is based seems never to have entered the writer's head, — the powerful contrast of red and green between the walls and the roof, the red toned into sobriety, the green reduced almost to a dusky gray; both relieved, and the darkness of the roof especially subdued, by the multiplied ornament in gold and sober color with which it is covered. This contrast, heightened in the ground-colors of the great central tower into deeper red and darker green, but still more overlaid with paintings and conventional decoration in rich but still soberly harmonized colors, underlies the whole scheme, and with the general distribution of the decoration must have been the first and leading conception in the artist's mind. It sounds audacious in description, and we remember noticing that the *Architect*, with an appearance of amused surprise, quoted a description of it, under the title of "a Boston Basilica," from some American journal, in which it was roughly set forth as having red walls, a green roof, and the ceiling of the apse solidly gilded. Yet the power with which Mr. LaFarge has carried out his bold conception, and subdued his wide range of rich coloring, in spite of obvious faults of detail, into a harmony of unusual solemnity, is to us the most striking characteristic of the work. We doubt moreover whether any artist who had not got his first training in color as a painter of pictures rather than of decoration could have succeeded in it.

PAPERS ON PERSPECTIVE.

III. — SKETCHING IN PERSPECTIVE. THE PERSPECTIVE PLAN. DIAGONALS.

Having in the first of these papers considered the nature of the phenomena with which perspective drawings have to do, we examined in the last paper the aspect of the drawings themselves, first observing the relation which lines parallel to the plane of the picture bear to their perspective representations, and then the relation that the perspective lines and planes, by which the objects represented are defined, bear to the perspective of their vanishing points and vanishing traces.

41. Plate II. illustrates almost all the points raised in explaining Plate I.; the roofs that are below their traces being all visible, and those that are above them being all out of sight, while all the lines of intersection of the planes converge to the intersection of their traces. This is specially noticeable of the *valleys* of the main roof in the lower picture.

42. The trace of the system of vertical planes P P′ to which these valleys are parallel, and which accordingly passes through their vanishing points (13 c.), and which was not drawn in the previous plate, is here shown. Since the lines which indicate the position of these valleys in the perspective plan lie in the same vertical planes with the valleys themselves, they must have their vanishing point in this same vertical trace T P P′; and since, like all the lines of this plan, they lie in a horizontal plane, their vanishing point must lie in the Horizon (13 d): it is therefore to be sought at the intersection of T P P′ with the Horizon, at the point marked V_X (13 e). Since the vertical planes in which these valleys lie are obviously at an angle of 45° with the principal vertical planes R Z and L Z, this line X, whose vanishing point is at V_X, is at 45° with the lines R and L.

43. If we put the eye at the station-point S, four or five inches in front of C, and, looking first at V_R and V_L in directions at right angles to each other, look then between them so as exactly to divide the angle, we shall be looking in the direction X, and shall see V_X directly in front of the eye (7).

We will retain this notation, V_X, throughout these papers, to denote the vanishing point of horizontal lines making an angle of 45° with the principal horizontal lines, R and L; and shall call it, for brevity, the vanishing point of 45°.

44. The little building on the left has steeper roofs than the other, their slope being the same as that of the roof of the tower. Their vanishing points are accordingly N_1, M_1, P_1, etc.

As the tower roof is supposed to slope alike all round, the hips P_1 and P_1' lie also in parallel planes, at 45°: their projection on the perspective plan has V_X for its vanishing point, and V_{P1} and V_{P1}' lie in the trace of the plane P P′ at equal distances above and below the Horizon (36).

45. The position of these vanishing points and traces is supposed to be determined just as the position of the other leading points in the picture is determined; that is to say, their relative position on the paper is made to correspond to the relative position of the real points and vanishing points, as nearly as may be, by the eye; by looking first at the point, and then looking for the corresponding place on the paper. The position of the leading vanishing points being thus determined, the vanishing traces can be drawn connecting them, and new vanishing points such as V_P and V_P' determined by their intersection.

If the propositions illustrated in the last paper are borne in mind, a consistent and tolerably correct perspective sketch can easily be made, the eye being greatly aided in its estimate of the relations of things and their apparent shape and dimensions, by the considerations to which attention is thus directed. The principal points being fixed by the eye, the other points are then determined, partly by the eye, partly by means of lines drawn to the vanishing points.

46. A great advantage may also be found in the use of a *perspective plan* of any object that is to be drawn, especially in sketch-

ing not from objects but from the imagination. Thus in the figure (Fig. 5), although the main building could be drawn without much chance of error, it is by no means so easy to determine just where the tower behind it should make its appearance over the roof. By completing the plan, however, as is done by dotted lines, its position is at once determined. The objection that it is undesirable to cover the drawing with construction lines may be entirely met by drawing the plan at a lower level, as if it were the plan of the bottom of the cellar, ten or twenty feet underground, as is done in the figure; and for the purpose in hand the cellar may be supposed to be of any convenient depth, so as to get the plan entirely out of the picture.

47. This sinking of the perspective plan has two incidental advantages. In the first place, it makes it practicable to draw it on a separate piece of paper, which may be removed and kept for use a second time, if, as often happens, a perspective drawing needs to be made over again. In the second place, it defines the positions of things much more accurately; the lines by whose intersection the position of the vertical lines is determined cutting each other more nearly at right angles. It will be seen in the figure that the lines in the real floor-plan cut each other so obliquely that it is not easy to tell exactly where the corners of the tower do come.

48. It follows from this that the level at which the object is to be shown in perspective is quite independent of the level chosen for its plan. This also is illustrated in the figure; the same plan serving for three representations of the building, at different levels, one nearly even with the eye, with a bird's-eye view below, and with what might be called a toad's-eye view of it above. The same vanishing points being employed in all three sketches, the phenomena pointed out in the previous paper, of the appearance and disappearance of plane surfaces according as they come below or above their horizons, are here again illustrated.

49. In thus sketching in perspective, whether from nature — that is, from a real object — or from the imagination, it will be found much easier to determine vertical magnitudes than horizontal ones; that is to say, it is easy to determine the position of horizontal lines, but not their length; and the length of vertical lines, but not their position.

In the sketch, for example, the position of the vanishing points, and the position and height of the front corner of the building to be represented, being once assumed or determined, other heights, whether equal or different, can easily be determined by means of parallel lines drawn to the vanishing points. The height of an object having been assumed in one part of the picture, an object of the same height can be put in anywhere else by the employment of parallel lines.

But though it is thus easy to represent the three gable-ends in this sketch as being of the same height, it is not so obvious how to draw them so that they shall all seem equally wide.

50. Moreover, the subdivision of the perspective of vertical lines, whether into equal parts or according to some given proportion, presents no difficulty; for the vertical lines are parallel to the picture, and their perspectives will accordingly be divided just as the lines themselves are (20).

But while the division of vertical lines and their apparent diminution in size is easily managed, the subdivision of horizontal and inclined lines (except those which like the vertical lines are parallel to the plane of the picture) is a matter of difficulty. The further divisions are smaller, but it is not clear how much smaller.

Two methods are adopted to determine this, — the method of Diagonals and the method of Triangles. Let us take the first, first.

The method of Diagonals is illustrated in the various figures of Plate II. It applies to parallelograms whose perspectives are given or assumed the following propositions: —

51. *Proposition* 1. A line drawn through the intersection of the diagonals of a parallelogram, parallel to two of its sides, bisects the other sides and the parallelogram itself.

This process may be repeated with each half, and the given figure, or any line in it, divided into 2, 4, 8, 16, or 32 equal parts, etc. See Fig. 3, 1.

The application of this to the perspective of a parallelogram is shown in Fig. 5, where the left-hand side of the larger building is thus divided.

52. This is the common way of dividing a perspective line or surface into halves; and it is constantly used, as in the left-hand side of this building, and on the right-hand side of the building above (Fig. 4), to determine the centre line of a gable, and the position of its apex.

53. Less familiar is the employment of this principle to ascertain the vertical axis of a tower two of whose sides are given in perspective, as in Fig. 5. If diagonals are drawn across the tower, from two points on the right-hand vertical corner to points at the same levels on the left-hand corner, they will intersect in the middle of the tower, and a vertical line through their intersection may be used to determine the apex of the roof which covers it, as in the figure. These diagonals lie in a vertical plane that crosses the tower diagonally.

54. It is obvious that this furnishes an alternative method of determining the slope of these roofs. Instead, that is, of fixing the position of the vanishing points of M and M′, P and P′, and thus obtaining the direction of these inclined lines, we may assume at once the direction of any one of these lines, say the nearest one. The intersection of this line with the central vertical line fixes the height of the roof; the other slope and the other roofs are then easily drawn.

55. Perspective is full of these alternative methods, different ways of doing the same thing. Which way it is best to adopt in any given case, depends upon the nature of the case. In the present instance, the vanishing points V_M and $V_{M'}$ being outside the picture, the method of diagonals is rather the most convenient.

56. It is to be observed, however, that though V_M and $V_{M'}$ are off the paper, V_P and $V_{P'}$ are within easy reach. It is generally worth while accordingly to fix the position of the more remote vanishing points, so as to determine the position of the traces or horizons that lie between them, and the points where those traces intersect, even if we make no direct use of the vanishing points themselves. Thus in the plate, although the lines M_1, N_1, M_1', and N_1', which give the slope of the roofs of the small house and of the tower, are all at a distance, the traces of the planes of the roofs T R N_1, T L M_1, T R N_1', and T L M_1', all cross the paper, and their intersections V_{P1} and $V_{P1'}$ are close at hand.

57. *Proposition* 2. If through the intersection of the diagonals a second line is drawn parallel to the other two sides of the parallelogram, a single diagonal suffices to effect the subsequent subdivisions, as is exemplified in Fig. 3, 2, and on the left-hand side of the larger building in Fig. 6, below.

58. *Proposition* 3. Conversely, if a line drawn from one corner of a parallelogram to the middle of one of the opposite sides be continued until it meets the other side, prolonged, the length of that side, or of the parallelogram itself, may be doubled, and, by a repetition of the process, tripled, quadrupled, etc. See Fig. 3, 3.

This proposition is of great use in perspective drawing, as may be seen in Fig. 5, where the gabled end on the right is several times repeated, each time smaller than before.

It will be seen that the gable ends of the roofs grow steeper and steeper, their lines converging, in fact, to the distant vanishing points M and M′. By obtaining those points, the accuracy of these results can be tested.

59. *Proposition* 4. If one side of a parallelogram be divided in any way at one end, equal divisions may be laid off at the other end by means of two diagonals. See Fig. 3, 6.

This is very useful in giving a symmetrical treatment to a surface shown in perspective, as is seen in the left-hand building, Fig. 5. The position and width of the nearer window on the side of the building being assumed, the vertical lines enclosing the further window are easily found.

At the end of the building the inclined lines of the gable, which may be regarded as the semi-diagonals of an unfinished parallelogram, answer the same purpose. The base of any isosceles triangle can be divided in this way.

60. *Proposition* 5. If one side of a parallelogram be divided in any way, the adjacent sides may be similarly divided into proportional parts, by means of one diagonal; and by using the other diagonal the order of the parts may be reversed. See Fig. 3, 4.

By this means any required division of a line given in perspective may be effected, as is shown in Fig. 6, on the right-hand or shaded sides of both buildings. The required division is made on the vertical line, and than transferred to the horizontal line by means of the diagonal, the nearest corner of the small house being divided according to the desired position of the door and windows, and that of the large building into three equal parts.

61. If the diagonal makes an angle of 45° with the adjacent sides, their segments will of course be not only proportional, but equal, each to each.

In the perspective plan of the small building, for example, in which the diagonal is directed to V_X, the "vanishing point of 45°," and accordingly makes an angle of 45° with the sides of the building, it appears that the window is just as far from the corner on one side as the farther edge of the door is on the other. It appears also that the plan of this building is just four squares, though it hardly looks so, the side being greatly foreshortened, while the main part of the other building is just as broad as it is long, comprising nine squares each as large in plan as the tower.

62. In applying this proposition to a perspective drawing, the line on which these parts are first laid off must of course be a vertical line, or some other line parallel to the plane of the picture, as it is only in the case of such lines that the division of the perspectives is proportional to that of the lines themselves (20).

63. *Proposition* 6. It is not necessary that the length of this line shall be previously determined. Indeed, it is more convenient that it should not be, as it is easier to establish a given ratio of parts on an indefinite line. The equal or proportionate parts may be set off at any convenient scale on any convenient line, that touches the end of the line to be divided, and the diagonal drawn without completing the parallelogram, as in Fig. 3, 5.

The division of the long wall in Fig. 6, for instance, is effected by setting off three equal distances upon the further corner, just as well as by dividing the near corner into three equal parts.

64. It is not necessary in any of these cases, of course, that the

parallelogram shall be a rectangle. The inclined line N, for example, in the middle of the upper figure, Fig. 4, is divided into three equal parts by equal divisions laid off on the vertical line that bisects the gable.

In these last propositions, it will be observed, use has been made of only half a parallelogram, that is to say, of a triangle.

65. Proposition 5 may then be re-stated as follows: —

If one side of a triangle be divided in any way, the adjacent side may be divided into proportional parts by means of lines drawn parallel to these two sides and meeting on the third side. See 4, Fig. 3.

66. And from Proposition 6 we may derive this: —

If from one end of a line there be drawn an auxiliary parallel to the plane of the picture, any parts taken upon the perspective of this auxiliary may be transferred to the perspective of the line, in their true proportions, by means of a third line joining the last point taken on the auxiliary with the other end of the first line (65).

67. But as any line, drawn in the picture at random, may be conceived of as being the perspective of a line, which it exactly covers and conceals, drawn parallel to the picture, it follows that *any line whatever, touching one end of a perspective line, may be used as an auxiliary by which to divide it in any required proportion;* and, the triangle being completed, the first segments of the broken lines by which the proportions are transferred will be parallel to the line to be divided and directed to its vanishing point, and the second segments will be actually parallel to the auxiliary line, since its vanishing point is at an infinite distance.

68. Thus if it is required to divide the plan of the left-hand building into five equal parts, instead of four, we may from the further end of the side draw a line in any direction, say at an angle of 60°, and lay off on that line five equal parts, using any convenient scale, as in the figure. Completing the triangle and proceeding as above, we get the points of division desired. This triangle does not lie in the horizontal plane, but in an oblique plane, containing both the horizontal line to be divided and the auxiliary line; this line is parallel to the picture, and is shown in its true direction.

The next paper will take up the division of lines by the Method of Triangles.

THE HOUSE BEAUTIFUL.

Among the many publications which the steady growth of popular enthusiasm for the various forms of house decoration has called out with the aim of assisting those who feel the impulse of the time, there has appeared, in answer to the general demand for some definite advice, The House Beautiful,[1] by Clarence Cook. The essays on Beds and Tables, Candlesticks and Stools, that comprise it, were published originally in *Scribner's Magazine*, where they gained popularity by the interest of the subject, by their own liveliness, and the beauty and number of their illustrations. Mr. Cook has introduced his essays to the public, without apparent alteration, in the form of a large and sumptuous book, — fine to look upon, and uncomfortable to read, — forgetting that the lively and somewhat thin talk which is accepted in a popular magazine may ill support the dignity of a bulky volume.

The introduction and preface through which one enters the House Beautiful are sensible and without pretence, and give a pleasant suggestion of the simplicity, beauty, and utility to be looked for in the following chapters. His advice to the reader is to consult his own needs and desires, assuring him that with good taste and contrivance these necessities will give a charm to the home that wealth without taste cannot bestow. The book itself does not bear out the promise of its vestibule. It contains a great many sensible suggestions, much useful information, and the indications of a wide reading, but displayed with little coherence of idea, and diluted with a great amount of what it is hard to call by any better name than artistic twaddle. It is divided among four subjects, — the Entrance, the Living-Room, the Dining-Room, and the Bedroom; and in each the author makes some commonsense and practical suggestions, although there is a want of method in his advice that must be sometimes puzzling.

A hall, he says, should be large in proportion to the rest of the house, giving a hospitable and generous look to the whole; and draws the plan of a small house differing from the general style of New York houses, where there is plenty of room and light. The dining-room should be large and hospitable, with no more furniture than called for; not of necessity sober in coloring as has been the fashion for many years, but cheerful and homelike in appearance. He shows several cuts of old-fashioned sideboards that would look well in dining-rooms, but gives the advice that "unless he could get an old one and a good one too, he should much prefer having one made after a design of his own time." There however are no modern designs among these illustrations. The old blue India china is considered "the most serviceable for every-day use; and although many people will be a little repelled by the first blush coarseness of the ordinary blue India china, let them remember that this coarseness troubles them more than it would if they had not been used to the impeccable smoothness of the French porcelain, and then it is really not the china that is coarse, but the decoration," — which, we may add, is quite enough.

He has a wholesome disdain for finery (unless it be in bookmaking), and "uses the word living-room instead of parlor because he is not intending to have any thing to say about parlors;" and "begins with taking the largest and pleasantest and most accessible room in the house, gives it up to the wife and children in the day-time, and to the meeting of the whole family when evening comes. The furniture should be the best designed and best made that we can afford, all of it necessary to our comfort, and intended to be used; not an article allowed that cannot earn its living and cannot prove its right to be there. The wants first provided for, we will then admit the ornament of life, — casts, pictures, engravings, bronzes, books, chief nourishers in life's feast; but in the beginning these are to be few, and the greatest care is to be taken in admitting a new-comer. The room ought to represent the culture of the family — what is their taste, and what feeling they have for art; it should represent themselves, and not other people; and the troublesome fact is that it will represent them whether its owners would let it or no." A piece of good advice here given is "that every piece of furniture in the room must have a good and clear reason for being there." Then follow many designs for chairs, sofas, bookcases, cabinets, etc., suitable for use in such a room, few of which seem to possess one essential requisite for their admittance to the House Beautiful, — that of beauty; as for instance, in No. 17, there is neither beauty nor utility in the "*chaise longue*," and although interest attaches to it from the fact that George Fox once slept on it, that is hardly a recommendation for a book that assumes to instruct us in the beauty with which a house should be adorned. The chair in No. 23, "which appears perfect of its kind, both for the elegance of its lines and its comfortableness as a seat," gives, we must say, little impression of flowing lines or gracefulness to the reader. The greater number of the chairs seem to be heavy or clumsy in their construction, and ugly; they may be comfortable, but one does not feel inclined to try them. "The handsome chair of carved oak" (p. 260) hardly agrees with either simplicity or beauty of style. The carving may be handsome, and the chair comfortable; but whatever its history, it could not have been more involved than its construction. In Nos. 14 and 15, where the designs made from the settle or ironing-table of the present day are found, Mr. Cook introduces the pictures, but finds fault with the design, the form, and the workmanship, so that we feel as if led into a perplexing place, only to be cast adrift.

These examples suggest what seems to us the fundamental fault of Mr. Cook's book. We do not see how it is to be a guide in taste for anybody; for the author's ideas of taste seem to be all at sixes and sevens. A bit of furniture may take his fancy by quaintness, by association or history, or by an assumption of fitness; and uncouthness, ill proportion, or recklessness of design, are no barrier to his admiration. Sometimes it is primness and sometimes license, sometimes clumsiness and sometimes flimsiness, that seems to win his applause. Mr. Cook, to be sure, disclaims any intention of furnishing his readers with a series of examples to be copied; but we can only infer, then, that his profuse illustrations are meant as guides to their tastes. If he had only meant to give them practical information, he might have saved himself three-fourths of his writing, and them three-fourths of their money.

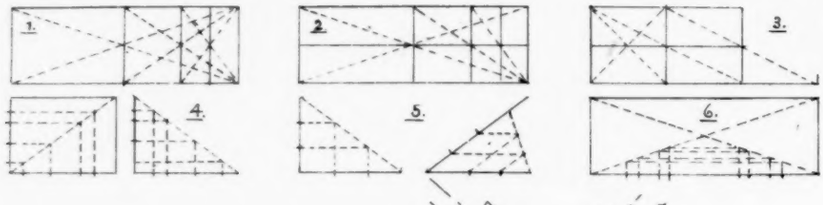
The wood-cuts, for which *Scribner's Magazine* is justly famous, are here mostly the work of Mr. Marsh, and are marvels of cutting superbly printed. As specimens they deserve, as Mr. Cook says, to be preserved in a volume. It is only to be regretted that they are often wasted on indifferent subjects, and, we must say frankly, on inferior drawings. Mr. Cook's comments on them, which are mainly indiscriminate eulogy of Mr. Lathrop's work, seem to us decidedly inexpert. Mr. Lathrop's illustrations, besides being often undecided and faulty in drawing, are apt to be disagreeable in texture, full of uncalled-for black lines and stains, and harsh and spotty in effect. On page 38, for instance, it is found necessary to bring out the glass by means of a large spot of black behind it; so on page 298, all tone and gradation is lost, and the cleverness with which the effect of firelight is secured cannot disguise the essential ugliness of the picture. The few drawings by Mr. Sandier, which tell their story simply and with refined precision, in spite of a little want of emphasis, are a relief to the eye after the blaze of Mr. Lathrop's coruscations in black and white.

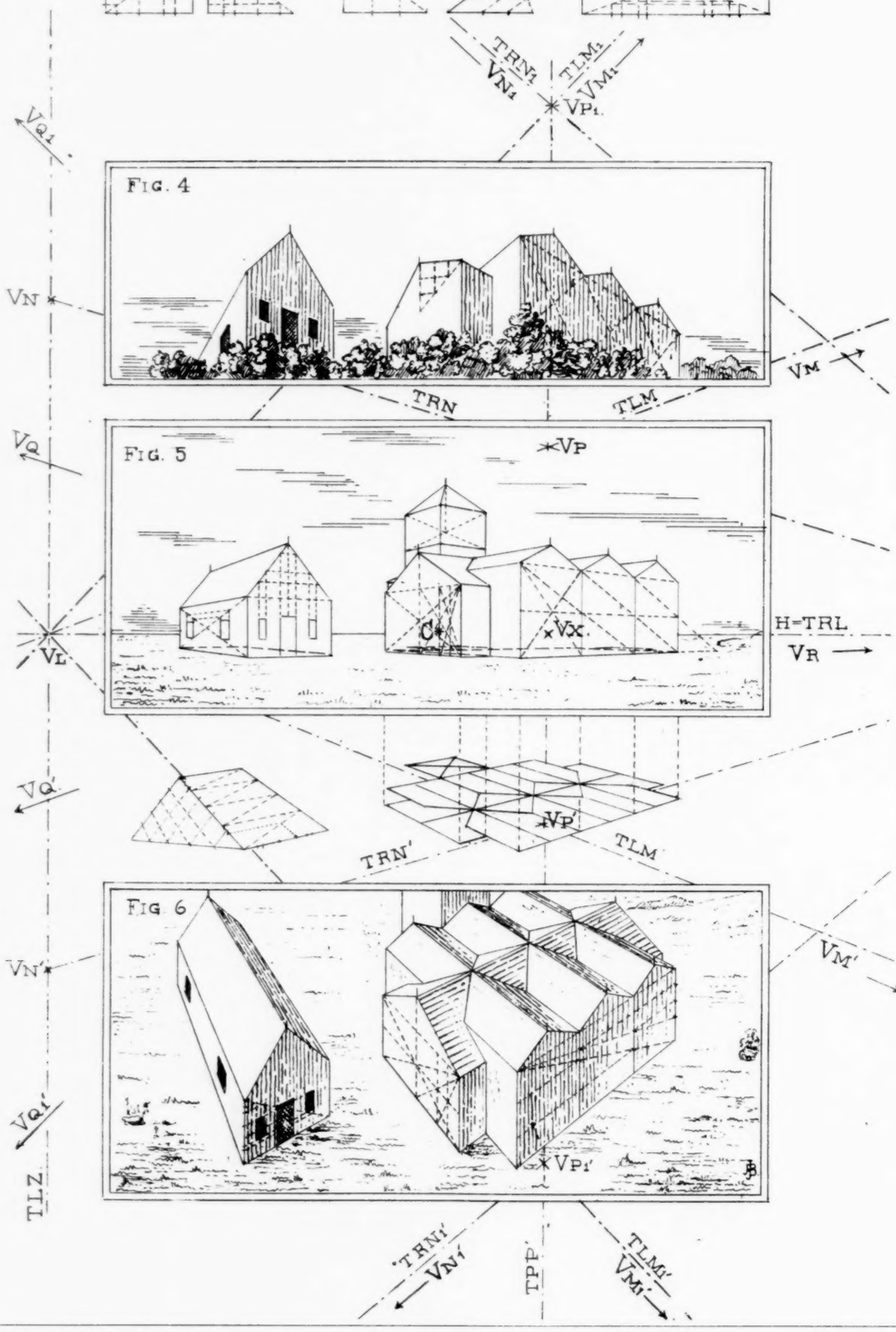
Perhaps the worst sin against good taste is the frequent mention of the author's friends, and the way in which he constantly drags them before the public. There is scarcely a page in the whole volume on which Mr. Marsh's or Mr. Lathrop's name does not appear, and with praise little less than fulsome. What are those who live beyond the pale of New York to think of Mr. Sypher and his bric-à-brac, emancipated from the pawnbroker's shop? How are Cottier and others to supply the immense demand for cabinets, chairs, and stuffs, that would naturally spring from so flattering a notice as this? On one page his friend's beautiful drawings are recommended to us, and on the next the lovely chintzes and algériennes of Miol and Colinshaw. Messrs. Cottier, Marcotte, and Herter are sedulously recommended, although their beautiful

[1] The House Beautiful. Essays on Beds and Tables, Stools and Candlesticks. By Clarence Cook. New York: Scribner, Armstrong, & Co. 1878.

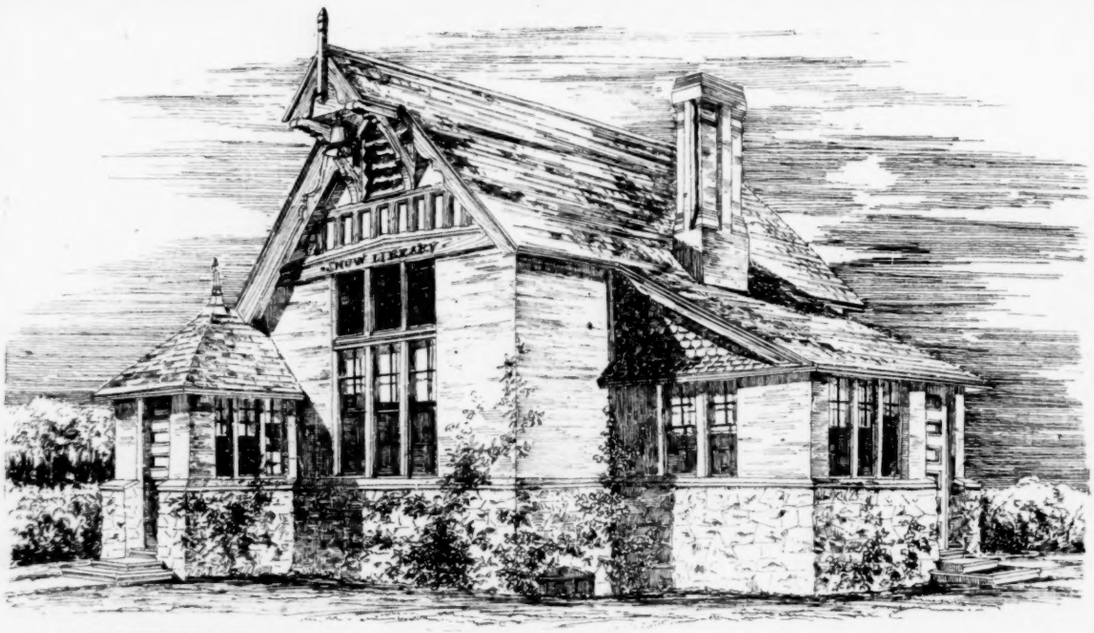
PLATE II. THE PERSPECTIVE PLAN. USE OF DIAGONALS.

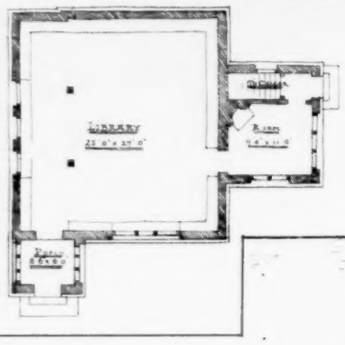
FIG. 3.





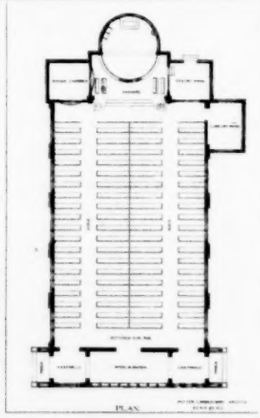
THE HELIOTYPE PRINTING CO. 330 DEVONSHIRE ST. BOSTON.





SNOW: LIBRARY: AT: ORLEANS: MASS.

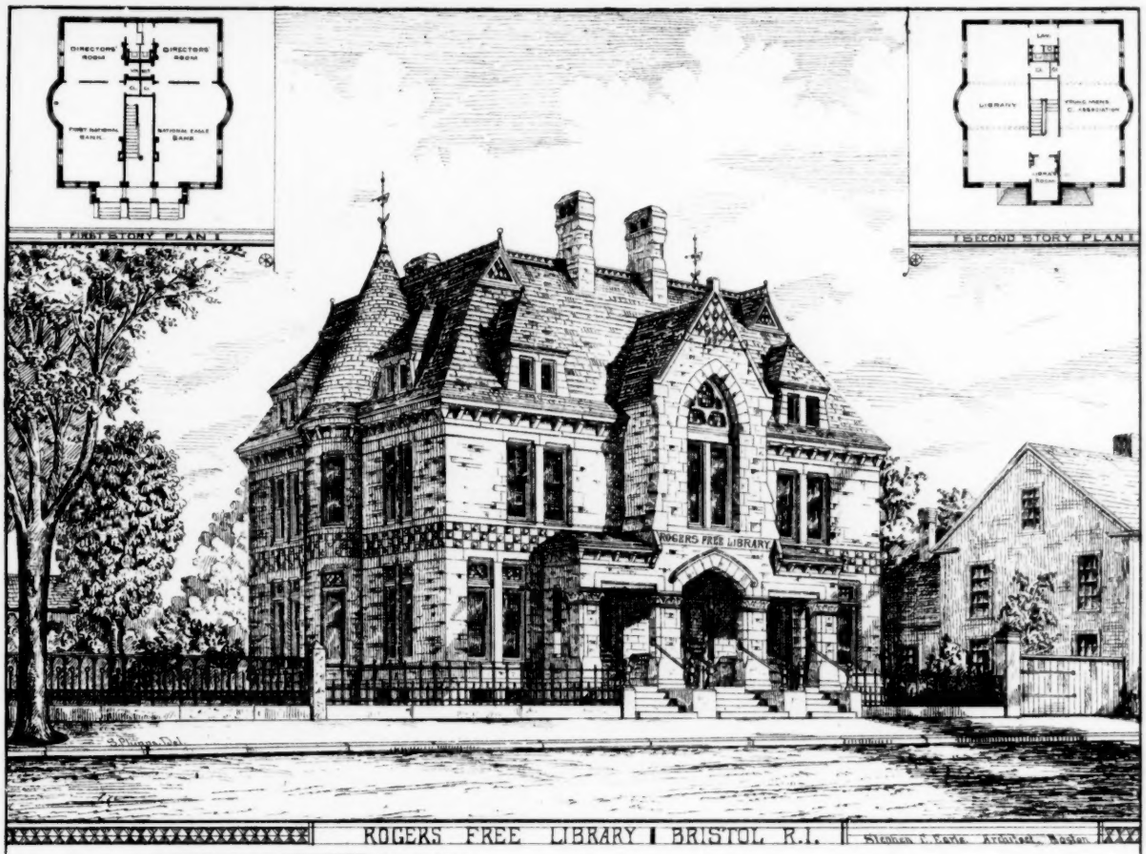
CABOT AND CHANDLER, ARCHITECTS.
BOSTON MASS.



Perspective View of a Country Church.

THE HELIOTYPE PRINTING CO. 330 DEVONSHIRE ST. BOSTON

POTTER & ROBERTSON ARCHITECTS. NEW YORK



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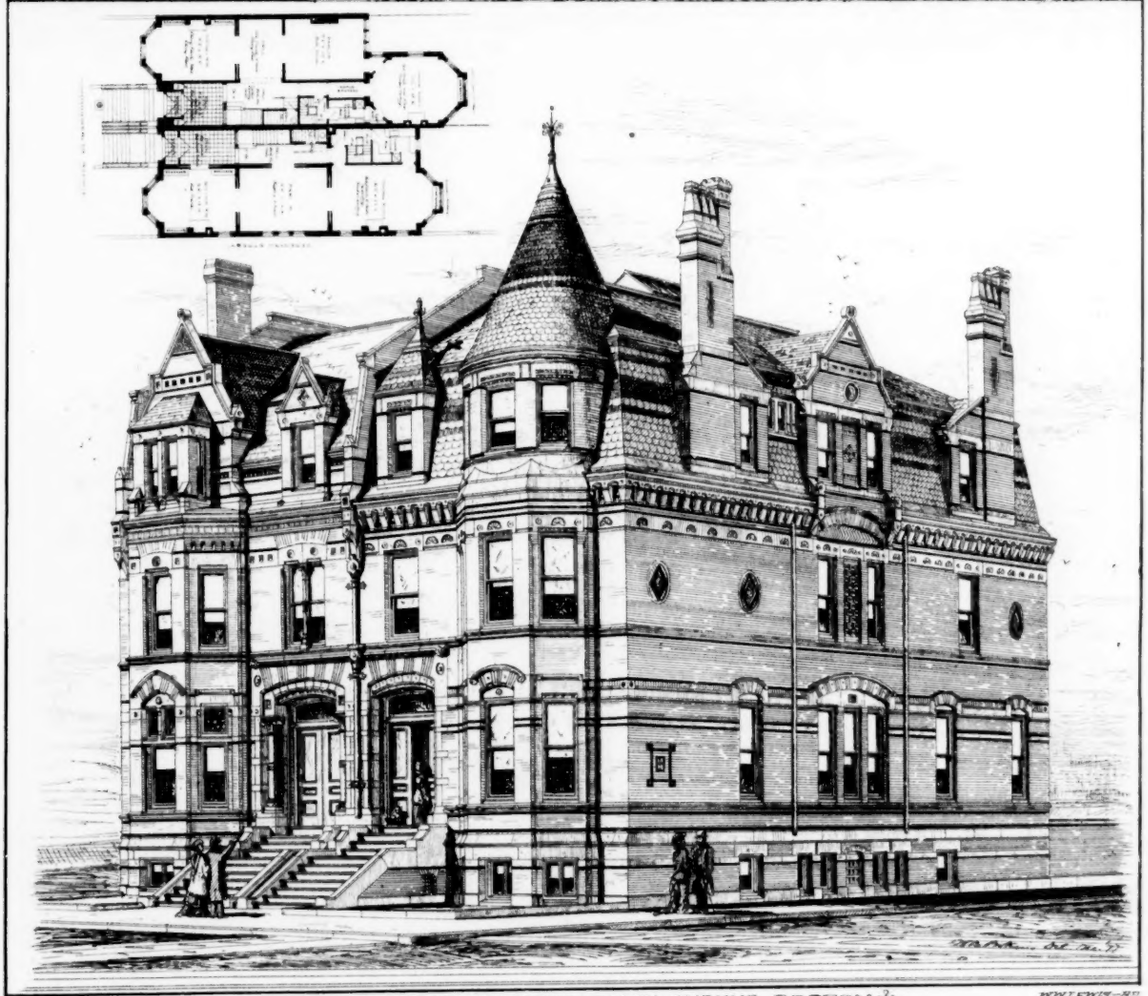
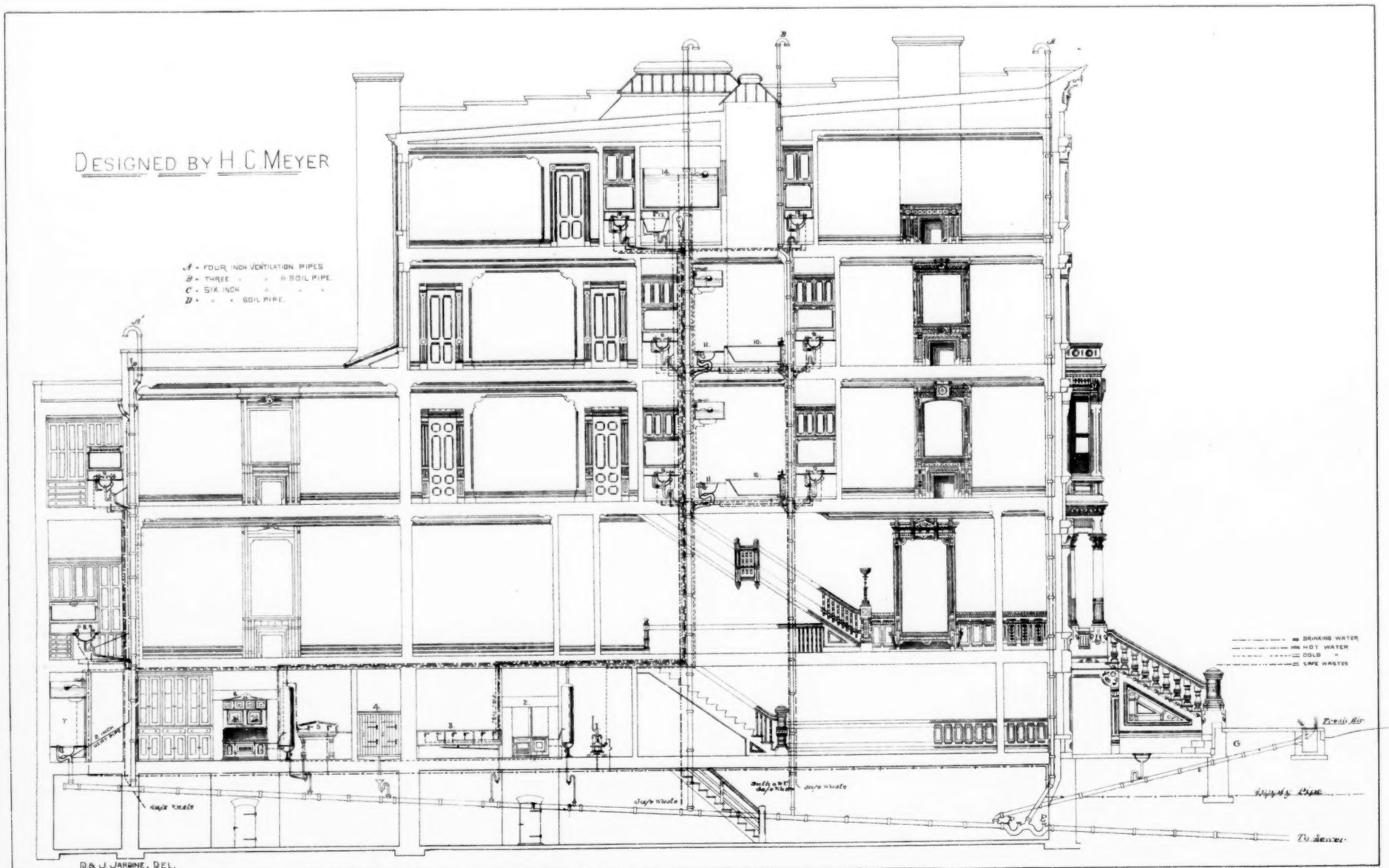


THE HELIOTYPE PRINTING CO. 330 DEVONSHIRE ST. BOSTON. TWO HOUSES-COMMONWEALTH AVENUE, BOSTON.



PLUMBING IN AN AMERICAN CITY DWELLING

SHOWING PROPER ARRANGEMENT OF PLUMBING WORK THE ESPECIAL OBJECT BEING THE ABSOLUTE EXCLUSION OF NOXIOUS GASES.

THE HELIOTYPE PRINTING CO. 220 DEVONSHIRE ST. BOSTON.

designs and exquisite taste in decoration are beyond the limited purses of those to whom this book is specially addressed; nor are many so fortunate as to number among their friends so skilful and ingenious a carpenter as Mr. Matt Miller. In short, after going over this book with its curious compound of moderation and pretence, of good, bad, and indifferent subjects superbly illustrated, of common sense and literary foppery, the reader is tempted to quote to the author a sentence from his introduction, which, if not a guide to beauty, is at least a sound warning against vagaries: —

"If I am pushed to the wall with a question as to my right to be heard in this matter, I can only say that after much tribulation I have reached a point where simplicity seems to me a good part of beauty, and utility only beauty in a mask."

THE ILLUSTRATIONS.

SNOW LIBRARY AT ORLEANS, MASS. MESSRS. CABOT AND CHANDLER, ARCHITECTS.

MR. DAVID SNOW left $5,000 for the purchase of books, on condition that the town of Orleans would put up a permanent building. The town voted $2,000, and $1,000 more were subscribed by former residents of the town, students of the academy which had stood on the site selected for the library. The main building measures on the outside 28 feet by 30 feet, with a projection of 12 feet by 16 feet for the librarian's room, and stairs to cellar. It is hoped the bell of the academy may be found, and hung in the projection of the front gable. The library is one story, high enough for a gallery, with open timber roof. The construction is a wall of pasture stone, five feet from ground, upon which is a nine-inch brick wall, with an inch air-space, the offset being covered with North-River stone. There is a cellar under the whole of the building. The cost was $3,200, and Mr. J. B. Wilson of Charlestown was the builder.

ROGERS FREE LIBRARY, BRISTOL, R.I. MR. STEPHEN C. EARLE, ARCHITECT.

The walls of the building are of Longmeadow brown stone, in rock-face broken ashlar work, and the inside is finished throughout in ash. The building is the gift of Mrs. M. DeW. Rogers, and has been erected at a cost of $15,000. Only the upper story is at present to be used for library purposes, the lower story being leased to banks.

HOUSES ON COMMONWEALTH AVENUE, BOSTON, MASS. MR. W. W. LEWIS, ARCHITECT.

These houses are built of brick, with sills, caps, belts, and other finish of Chicago terra-cotta.

PERSPECTIVE STUDY FOR A COUNTRY CHURCH. MESSRS. POTTER AND ROBERTSON, ARCHITECTS.

PERSPECTIVE STUDY, PLATE II.

See the "Paper on Perspective" in this number.

PLUMBING IN AN AMERICAN CITY DWELLING.

This section of an American city dwelling, which shows an arrangement of plumbing and waste pipes having specially in view the exclusion of noxious gases, may serve at once as a diagram and as an outline specification for first-class plumbing-work. Nowadays an architect can hardly assume that he has done his whole duty to his client until he has, either unaided or in consultation with a competent sanitary engineer, planned the arrangement of all plumbing-work; and this drawing suggests the practical utility there would be in adding to the ordinary drawings of a house a "quarter-scale" drawing, showing the arrangement of plumbing and draining.

A is a vent-pipe for the escape of gas from the sewer, should the trap E be forced by back-pressure. B is a four-inch pipe. The traps emptying into it are an inch and a half in bore; and it is not deemed necessary to ventilate them separately, as shown at D and at the basins at C.

C is a six-inch pipe, into which a four-inch water-closet trap empties on one side, and, on the other side, an inch and a half trap from the basin. The basin-traps are ventilated by a pipe entering the main ventilating-pipe just above the slop-sink No. 13.

D is a six-inch pipe, which has a four-inch inlet, and hence can never be filled by the inflow, intended to carry off the rain-water and the waste from the butler's pantry and servant's water-closet, each of whose traps is separately ventilated by a pipe branching into the pipe A′, which is also a vent for the main pipe D.

G is a fresh air or ventilating shaft, which has its opening at the curb covered by an iron grating, which can be concealed by a hollow carriage-block with perforated sides, in which a basket of pulverized charcoal can be hung, if desired, although its distance from the house would preclude the possibility of any offensive smell entering by the front-windows. This pipe G is also intended as a vent for gas when a column of water or solid matter is coming down the main pipes, and precludes the possibility of the traps up stairs being forced by back-pressure. It will be noticed that the main waste-pipe passes not under the cellar-floor but along the cellar-wall, where any defect or leakage can be easily discovered.

No. 1 is a three-inch double-acting pump of the improved pattern, made for house use by, say, Carr, Coleman, or Baxter, to be used when the head of water is not enough to raise it to the tank.

No. 2 is a laundry range, with a forty-gallon pressure boiler.

No. 3 is a set of earthen wash-trays supplied by ⅝″ Fuller's patent faucets.

No. 4 is a refrigerator with waste. It will be noticed that the waste is not directly connected with the sewer, — a necessary precaution, as there may be times when ice is not taken, or the house left unoccupied; in either of which cases the trap would become dry, and the refrigerator would become foul.

No. 5 is an improved kitchen-sink made to waste through one of the legs.

No. 6 is a range with a seventy-gallon pressure boiler.

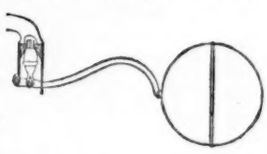
No. 7 is the servant's water-closet, supplied by a patented tank which combines an ordinary reservoir, a measuring-cistern (containing a given amount of water), and an extra large service-box. By an ingenious arrangement of valves, no water can enter the measuring-cistern from the reservoir while the handle of the water-closet is raised: so only three gallons can be used, if it is held open for an indefinite period. While, on the other hand, the valve that lets water into the service-box being four inches, and the outlet to the water-closet one inch, an abundant supply is obtained, even if the handle is held up only five seconds, to flush out, and fill the bowl.

No. 8 is a planished copper pantry-sink.

No. 9 is a fifteen-inch overflow basin supplied by No. 4½ Fuller's pantry-cocks, and emptied by Weaver's basin-wastes.

No. 10 is a sixteen-ounce tinned and planished French bath-tub supplied by a double bath-cock, and emptied by Meyer's bath-waste.

No. 11 is a Jennings all earthenware water-closet, which is too well known to need description, arranged for and supplied by the cistern described in No. 7.

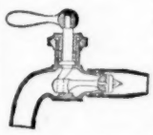


No. 12 is a fourteen-inch marbled basin with No. 1 Fuller basin-cocks, with basin-plug and chain-stay.

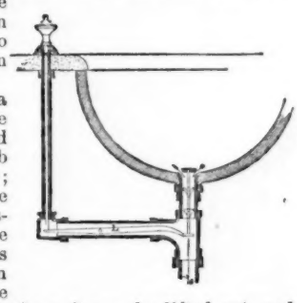
No. 13 is a slop-sink with self-closing cocks.

No. 14 is a cast-iron tank, supplied from street main through one-inch Fuller-Meyer patent tank-regulator, or by the pump No. 1.

[The peculiarity of the Fuller faucets is, that they shut off by means of a tapering, elastic plug, which has its end protected by a metal shield, and is drawn to a seat by an eccentric. It will be noticed, that, closing in the direction of the flow of water, the pressure of the water itself tends to keep them tight. The composition of which the elastic plug is made is specially prepared to be durable in hot water. The strain on the valve is restricted by the movement of the eccentric, which feature adds greatly to the durability of the faucet. As the water is entirely excluded from the chamber of the cock when closed, the faucet cannot be injured by the freezing of the pipe. The body of the cock can be unscrewed from the shank, so that new plugs can be put on when repairs are necessary.



The Weaver basin-waste is a simple contrivance to take the place of the ordinary plug and chain. By pressing on the knob R, the lever L lifts the stopper; by a slight turn to the right, the knob is held in place; by releasing the knob, the weight of the stopper causes it to drop into its place. The wings on the stem of the stopper serve as a guide and also a strainer: when choked up, it can be lifted out, and cleaned.



The improved bath-waste consists of a large cock, having an inch and a half hole through it, that can be shut off by a quarter-turn of the handle. This cock is attached to a connection which is soldered in the bottom of the tub, and facilitates very much the plumber's work in setting the bath-tub. A plate on the foot of the bath indicates the position of the cock.

The double bath-cock referred to is made so that it can be taken apart for repairs inside the bath, without disturbing the connections. It is virtually two Fuller cocks, — one delivering hot, the other cold water through the same outlet: when both hot and cold water cocks are delivering together, the temperature of the water can be adjusted as desired. Thus the bather is not obliged to

stand until more hot or cold water is let in to make the temperature of the water suitable. By screwing a coupling into the nozzle, to which is attached hose and sprinkler, a shower or shampoo can be obtained, less severe than the old-fashioned shower from overhead.

In this connection we will also draw attention to an arrangement of plumbing which is proposed by Col. G. E. Waring, jun., and is explained by the accompanying cuts.

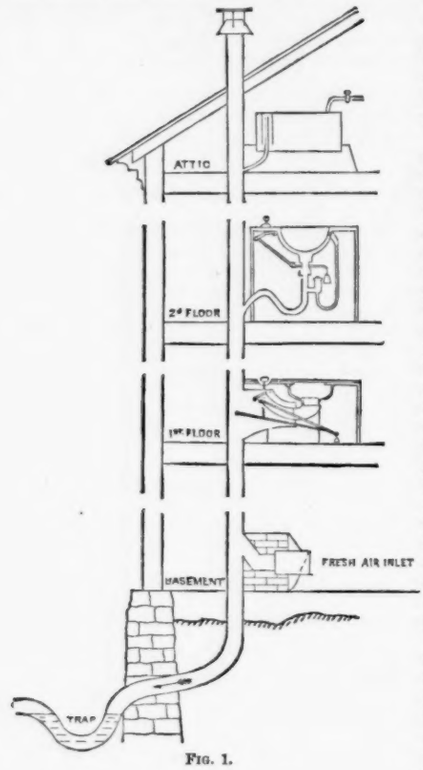


Fig. 1.

In Fig. 1 the soil-pipe is shown to be separated from the sewer by a water-trap outside the wall of the house, — the sewer is supposed to be ventilated independently. At the lowest convenient point fresh air is admitted to this soil-pipe, which rises through the roof, and is capped by a ventilating cowl. On the first floor is shown a water-closet which discharges directly into the soil-pipe.

The peculiarities of this water-closet are an earthenware bowl F, Fig. 2, which is supplied with water from a service-box; a flexible rubber tube A, which is supported in the position shown by the end J of the lever B, which has for its fulcrum the pivot O, which, as it passes through the sides of the soil-pipe, is

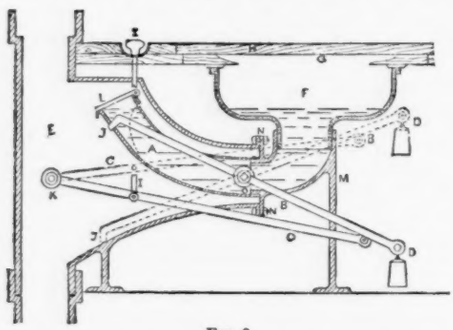


Fig. 2.

surrounded by packing-boxes to guard against possible leakage of sewer-gas. The lever is counterpoised by the weight D, and is actuated by the lever C which has its fulcrum at K, and to which the power is applied at J by the handle of the water-closet. The dotted lines show the action of these levers. L is a brass valve ground to its seat, and is air-tight in every position when the water is not actually flowing through it. This is the only point at which sewer-gas can make its entrance into the water-closet. E is a portion of the soil-pipe chambered out so as to admit of the rising and lowering of the levers and the rubber tube. This arrangement allows the water contained in the bowl and tube, which is much greater in volume than in ordinary water-closets, to be discharged almost instantaneously into the soil-pipe, carrying with it all fæcal matter, which, as it bears so small a proportion to the containing water, can hardly stick to the sides of the soil-pipe as it descends.

On the second floor, Fig. 1, is shown a set basin, — here taken as a type to represent basins, tubs, sinks, wash-trays, etc., — which is provided with check-valve and waste-plug as shown in Fig. 3. This basin has an overflow pipe F trapped at L, and made impervious to sewer-gas by the check-valve shown in detail in Fig. 4, where B is a brass valve ground so as to make an air-tight joint with its seat, and light enough to allow any overflowing water to raise it. The entrance of sewer-gas by the waste outlet in the bottom of the bowl itself, Fig. 3, is prevented first by an ordinary S-trap, and next by the plug B, which closes with an air-

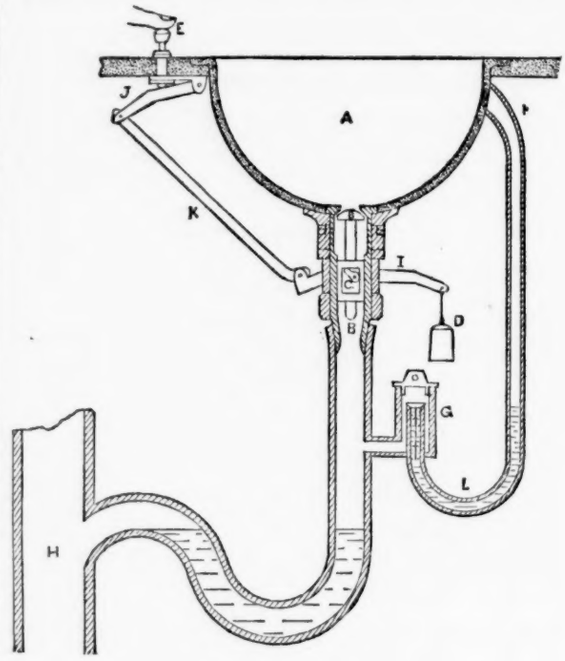


Fig. 3.

tight joint against the brass seating at the outlet. By the action of the weighted lever I, this plug constantly closes the waste outlet, whether the bowl be empty or full; and it is only at the time that water is actually flowing through the waste-pipe that the valve is open. To open the valve and empty the bowl it is necessary to press constantly upon the knob E, thus applying power to the short lever J, which is connected by a rod K to the lever I counterpoised by the weight D. Immovably connected to this last lever, at its fulcrum, and turning with it, is a short lever or cam C, which raises or lowers the plug B. It is to be observed that the action of sewer-gas, supposing that any were to penetrate as far as any of these valves, would be simply to close them more tightly.

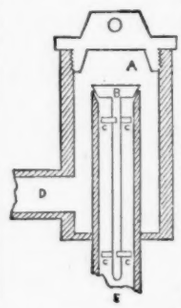


Fig. 4.

In the attic is shown a flushing tank, arranged to fill at regular intervals, and then automatically send a cleansing flow of water through the soil-pipe. The tank here indicated is Field's Flush Tank (see *American Architect and Building News*, No. 104), but a tumbler tank would fulfil the same purpose.

REPORT OF THE ELEVENTH ANNUAL CONVENTION OF THE AMERICAN INSTITUTE OF ARCHITECTS.

[Held at Boston Oct. 17, 18, and 19, 1877.]

SECOND DAY'S SESSION, OCT. 19.

The Convention was called to order at ten A.M., the President being in the chair.

Mr. Robert Briggs, C.E., Corresponding Member, read a paper on the Relations of Moisture in the Air to Health and Comfort; in which he discussed at length the effect of the hygrometric condition of the air in connection with climate, temperature, and ventilation, and argued the disadvantage to health of a difference in hygrometric condition between the air in houses and that outside, opposing the practice of artificially moistening the air introduced in heating buildings.

Mr. McArthur mentioned the influence upon the air of a room of an aquarium of about eight superficial feet of surface. He had been obliged to discard such an one because guns and other iron objects kept in the room with it had become reddened with rust, not while the room was artificially heated, but in summer, from air coming in through the windows. He inquired what would be the effect upon air at a temperature of say seventy-two degrees of such a water-surface. He recalled his experience in

passing a winter on the table-lands of Mexico, where the air was excessively dry, so that meat dried up without putrefaction, and the inhabitants were in the habit of lying down on the ground wrapped only in their *serapés* or blankets, and sleeping at any time at night or all night. In this dry climate the prevalent diseases were heart-disease and rheumatism.

MR. BRIGGS thought that from such a water-surface as Mr. McArthur mentioned the amount of evaporation would be small, probably not more than a gallon a day, unless a large quantity of dry air were introduced into the room. Probably the amount absorbed would be from one-tenth to one-eighth of a grain for every cubic foot of air introduced.

On motion of the Secretary, the thanks of the Institute were voted to Mr. Briggs for his paper, which was referred to the Committee on Publications.

COL. GEORGE E. WARING, JUN., C.E., Corresponding Member, then read a paper on Sanitary Sicence,[1] in relation to house drains and their ventilation. The thanks of the Institute were voted to Col. Waring, and his paper was referred to the Committee on Publications.

In the discussion that followed the paper, Mr. McArthur asked whether there were any means of ventilating the public sewers of Boston, citing the example of Philadelphia, where, some years before, when he was putting up a very high building, the city engineers had asked permission to have a tall flue built in it and connected with the sewers, in order to ventilate them.

The President called on Mr. E. S. Philbrick, C.E., of Boston, who was present, for information on this point, and for remarks on the subject of the paper.

MR. PHILBRICK said that the whole present system of sewerage in Boston was patchwork, which had grown without uniformity during the last two generations, and was a fair sample of the degrees of imperfection with which the whole subject of drainage had been treated throughout the country, and, in fact, throughout the world. There were some thirty or forty independent outlets into tide-water, many of them submerged by the tides, which had a range of from ten to fourteen feet. There was scarce any systematic attempt to relieve the sewers of the pressure exerted on them by the influx of tide-water. About two years ago, the sewer department had issued an order to householders to connect their eave-gutters with the sewers, partly with a view to get rid of the rain-water rushing over the sidewalks and street-gutters, and partly to ventilate the sewers through the spouts; but he thought little had been done to carry out the order. He thought there were no connections with any tall tower or chimney, nor did he think that such relief was of any value; for the amount of air that could be carried up any chimney likely to be built would be entirely inadequate to change the air in any considerable length of sewer. This ventilation problem was still far from being solved. The common method was to leave man-holes at every street-corner, with perforated covers, in order to have so many ventilating openings that the escape of bad air from any one would be insufficient to do harm.

The plan which had been undertaken in Boston was to carry a large intercepting sewer round the south side of the city, gathering all the sewage and carrying it out into the harbor, where it would be delivered in deep water on the ebb-tide, so as to pass out to sea. This seemed to be accepted here as the necessary way of disposing of sewage. All the efforts made at great cost in England, for utilizing sewage by exhausting its noxious elements, had proved futile as far as economy was concerned, except where the sewage could be directly applied to the land for agricultural uses. This was impracticable in Boston, for lack of accessible land, however it might prove in other towns in the Commonwealth. It had been known, for many hundred years, that the proper way of disposing of effete matter is to return it to the earth to nourish vegetable growth; but the means of accomplishing this had never been sufficiently discussed.

In confirmation of Col. Waring's remark concerning the apathy of our people, he heard it said every week that since people had endured the present arrangements for some years, and perceived no harm from them, there was no need to be anxious about them. It was to be remembered, however, that while the sewage emanations were only one out of several factors necessary to produce disease, and a vigorous constitution might in nine cases out of ten resist them, they certainly could be traced as one predisposing cause of disease, which it was therefore our duty to eliminate if possible. The means for that elimination devised by different minds were extremely various. Doubtless most of them had merit, and were more or less adapted to particular cases; but till the whole subject had been intelligently studied it would continue in its present chaotic condition. He thought that the apathy had begun to yield a little among plumbers. After hammering away at the subject for four or five years, with Col. Waring and others, he found the fact beginning to be recognized that a soil-pipe ought to be carried up through the roof. He thought that still it was omitted in more than half the houses built in Boston this year; and he had talked within a month with many plumbers who thought it a humbug, such was the tendency among all artisans to run in ruts, and such the difficulty of introducing a new idea when men think they have done well enough if they have done as their fathers did.

One other point to which he thought it desirable to allude was the disconnection of the house-drainage from the sewer or cesspool, a thing easier in a milder climate, but possible in ours. By this he meant not merely interruption of the connection by a trap, but a free ventilation of the house system. The soil-pipe should not only run up through the roof, but should have free access of air from below through an opening outside the house wall; otherwise every descending column of water from the upper stories would drive the air in the pipe before it, especially if it was confined by a trap at the sewer, and force it out through the traps in the lower stories. This had been done probably in not more than one per cent of the houses in Boston. He was sorry to say that in the neighboring city of Cambridge an ordinance compelled every man to have on his own ground a depository of filth where it could be kept for more complete putrefaction directly under his own nose. Another thing of the same sort was the ordinary cylinder-trap. It would hold a quart or two of matter, which in the course of a week became horribly putrid; and the flow through it occupied so little of its calibre that the rest was necessarily filled with grease and other deposits from the waters.

MR. STONE requested more precise suggestion as to means of breaking the connection between the pipe and the cesspool as this proposition required, a thing which it was difficult to manage in a climate so cold as ours. In Providence their system of sewerage required that there should always be a trap between the house and the sewer, and a connection with the spout from the roof; and that the soil-pipe should be carried up through the roof, so that there was a circulation of air through the roof. There was no direct provision for ventilating the sewers other than the man-holes mentioned by Mr. Philbrick, but the engineer had recommended that in public buildings, and if possible in private houses, in the higher parts of the city, there should be flues connecting with the sewers, which would be, as had been said, but little help, yet some help.

MR. PHILBRICK thought the best means of breaking the connection between the house-drain and the sewer, in our climate where it was necessary to put the work about five feet below ground, was to introduce a trap outside, with water-seal, of any approved form, the simpler the better, and the smaller the better provided it would carry the volume of water with which it was taxed, — one without square turns or corners to accumulate solid matter; and then to connect the house side of the trap with the open air, which might be done by a pipe carried up to the roof, near the chimney. He objected to the use of the down-spouts to ventilate the drains. This did very well in fair weather, supposing that the upper ends did not open near windows; but if it rained, the water descending by the spouts produced by its own entrance into the drains a pressure of air which must find vent. It was often argued that there would still be an ascending column of air in the centre of the pipe; but this was not the fact, the water descending in a spiral against the walls of the spout with an accelerated velocity, carried a column of air with it, so that during a rain the spout could not act as an upcast pipe, and another must be provided. Moreover, whenever water was discharged from the soil-pipe it drove the air before it, and drew after it another volume of air from the sky, and for this action too a vent was required. For country houses where there was ample room he had provided such relief at a short distance from the house. He had made a vent in the drain-pipe, opening it directly into a little well or manhole, walled in with dry stone, which ought to go down four or five feet, or under some circumstances deeper than that. The gases driven out from the drain were then absorbed in the ground without coming to the surface, and he had not found any inconvenience or any perceptible odor from them.

COL. WARING said that the method described by Mr. Philbrick had been much discussed in England, and had been accepted as the only valuable one. But in our climate there was some danger of freezing. It had been his habit, in the case of country houses, to carry the vent-pipe away some distance through the ground, that the warmth of the soil might have an influence upon it. In one instance he had carried the pipe across the cellar, that the air there might warm it, and then through the ground into the back yard.

MR. HARTWELL suggested carrying the pipe into a chimney-flue, provided there were no openings above from the flue into rooms. Mr. Cabot thought this dangerous, because of the risk of down-draughts into the rooms below, which were always likely to occur. He had always avoided this method. Mr. Philbrick objected that it was very difficult to maintain a close joint between a metal pipe and a brick flue. The expansion and contraction of the metal always broke the mortar in the joint, and it was impossible to keep it tight. Col. Waring suggested that the pipe might be turned into the flue, and carried up without a break.

Unfinished business was then taken up; the first subject of consideration being the report of the Trustees in regard to the position of honorary members. The President read the portion of the report referring to the subject.

MR. RICHARDSON thought that the Trustees had full power to take what steps were necessary, under Section 9 of Article I. of the By-Laws.

[1] See *American Architect*, No. 98, Nov. 10, 1877.

He was himself familiar with the circumstances in only one of the cases mentioned in the Trustees' report, — that of a gentleman who had been elected an honorary member in 1867, he being then one of a firm of architects in full practice: since then his attention had been turned mainly to landscape-gardening, and he was now less concerned with the practice of architecture than at any previous time within the past ten years; and Mr. Richardson thought it a hardship, in the case of this gentleman, to strike his name from the Institute roll without notice, by reason of a disqualification which had existed at the time of his election, and had continued to exist during the ten years since.

Mr. Haight suggested that under the By-Laws the only thing which the Trustees were authorized to do, in case of any infraction, however slight, of any of the articles, was to request the parties to resign; and that the attention of the Board having been called to certain irregularities, they were obliged to notice them, and, not considering that it was advisable to resort to the harsh measure prescribed for them, they preferred to come before the Convention and ask them what had better be done, and, if desirable, to request the Convention to make such order as they saw fit. He thought it would be well to refer the subject back to the Board of Trustees, with full power to act. Mr. Richardson agreed, and Mr. Haight presented the following resolution, which was adopted: —

Resolved, That this subject be referred to the Board of Trustees with power; and when the fact is brought to their notice that an honorary member of the Institute is deriving emolument directly or indirectly from the practice of architecture, that the Trustees be directed to take such action in the matter as shall be to the best interest of the profession.

The President next called the attention of the Convention to the portion of the report of the Trustees relating to the Washington Monument, which he read, and also portions of the reports from the Boston, Rhode Island, Baltimore, and Philadelphia Chapters, relating to the same subject.

Requesting Mr. Cabot to take the chair, the President made some remarks, quoting from the report of the commission appointed by the War Department to examine the foundations of the Monument, in confirmation of the opinion expressed by the Board of Trustees as to their insufficiency.

In explanation of the apparent inconsistency between the suggestion of the Philadelphia Chapter that designs should be invited for completing the Monument from all who desired to compete, and the uniform effort of the Institute to break up the system of general competitions, he said that the Philadelphia Chapter considered that in the case of a work so strongly appealing to the patriotism and interest of the whole country, every American qualified to make a design of that character would feel it not only a privilege, but a right, to be allowed to offer such thought and talent as he might be able to embody in a sketch, as a free gift for the service of his fellow-citizens.

When the Monument came to be built, it would have to be built from detailed plans, probably in accordance with some one of the sketches sent in; and it was the most natural course to employ the author of the sketch to develop his idea in detailed plans, and to watch over their execution; and for this service, which would be at a considerable sacrifice of time and money, the designer should be paid.

In regard to the selection by which the country should be sure of obtaining in the end the best design, the President spoke of the suggestion of the Philadelphia Chapter that three engineers of the War Department should be associated with three members of the Institute; saying that in his opinion, the relations of architects with engineers might be more cordial than they are, and in this particular case, that the engineers of the Department constituting formerly the Topographical Bureau were well educated in the theory of architectural design in their West Point course; mentioning that the plans sent in by them, by order of the Department, for the extension of the Capitol, were superior to nine-tenths of those submitted by architects. In construction, of course, they were fully our equals, and the Philadelphia Chapter could not see why it would not be an honor and a benefit to the architectural experts to have the co-operation of an equal number of such highly trained engineers.

The President continued, that although he had brought forward these considerations, so that if the Institute were to take any action in the matter, the resolutions of the Philadelphia Chapter might be regarded favorably with a view to their adoption by the Convention, nevertheless his own opinion was that it would be better and more dignified on the part of the Convention not to pass any resolutions on the subject whatever. He thought it undesirable for the Institute to appear to thrust itself into the matter until called upon.

Mr. Van Brunt thought the general feeling among the Chapters was in accord with that of the President, but there was a question whether the Institute, as the incorporated representative and guardian of the interests of architecture in the country, had not a duty to perform, without regard to the personal feeling of its members, in connection with the most important of the national monuments. He proposed that the Trustees should be authorized to offer the services of the Institute to the Association in some such form as was suggested in the resolution he would present, which was as follows: —

Resolved, — That the Trustees of the American Institute of Architects offer the services of the Institute to the Washington Monument Association, to assist them in considering the question of the completion of the Washington Monument in a manner commensurate with the importance of the occasion and in accordance with the interests of art.

Mr. Cabot and Mr. McArthur expressed opinions similar to those of the President.

At the request of Mr. Stone the resolutions adopted last year were read.

Mr. Ware moved the previous question on Mr. Van Brunt's resolution, which was lost. The whole matter was then, on Mr. Ware's motion, indefinitely postponed.

NOTES AND CLIPPINGS.

Fall of a Wall. — Early on Sunday morning, Feb. 3, the person having the charge of the Seventy-first Regiment Armory, at the junction of Broadway with Sixth Avenue, New York, noticed that one of the side walls was likely to fall out. The police were notified, and the street was hardly cleared before some thirty feet of the wall partly fell. To prevent the fall of the whole building it was found necessary to shore up the weakened wall. The building, which was built about fifteen years ago, was originally intended for a hotel, and the foundations and lower part were substantially built; but when it was decided to turn it into an armory, various changes were made which weakened the walls. The coping of the main wall on the Broadway and Sixth Avenue fronts was carried up some three feet above the gutter, so that ice and snow laid in it continually in winter, and the pressure of a snow-slide from the mansard roof is thought to have been the ultimate cause of the accident; but it is also said that the roof and gutters were in very bad order, and had caused the walls to become badly water-soaked.

The Cape Cod Ship Canal. — The Committee on Harbors of the Massachusetts Legislature have begun a hearing relative to cutting a ship-canal across Cape Cod. This canal, if the enterprise succeeds, will be $7\frac{8}{10}$ miles long, and 18 feet deep at low water at the south end. The estimated cost is 2,000,000.

The Committee on Harbors has lately received the following remarkable communication: —

No. 52 Spencer Street, Rochester, N.Y., Feb. 2, 1878.

Committee on Harbors Massachusetts Legislature.

Gentlemen, — I have seen it stated in New York papers of the 29th ult. that you are considering the project of cutting a ship canal across Cape Cod, the estimated cost of which is $2,000,000. Before deciding on that work, I respectfully ask you to examine a new project of mine, intended for the same purpose as a ship-canal, but capable of construction much cheaper. The idea has been approved by eminent engineering authority as applicable to the Isthmus of Panama. It is to carry the vessels across in a tank containing water to float them, the tank to run on a massive railroad. At each end of the track it would descend in the harbor, the tank running down until the water in it was on a level with the ocean. It (the tank) would be opened by suitable gates, and the ship received or discharged. This plan can be made as effectual as a canal, and the advantage in first cost is so greatly in its favor that it must secure your earnest consideration. Very respectfully yours,

Edmond Redmond.

Theatre Burned. — On Feb. 5, at one o'clock in the morning, the Academy of Music at Chicago was burned.

The English Obelisk. — A site has been chosen for the Cleopatra obelisk on the Thames Embankment at the top of the Adelphi steps, between Charing Cross and Waterloo Bridge.

Sketches of Manchester. — A series of sketches, architectural and general, is shortly to be published in England. These sketches are taken from the sketch-books submitted for the prizes given by the Manchester Society of Architects. The subjects are found in Manchester and its vicinity only.

Rendering Portland Cement Concrete Water-Tight. — With reference to the discussion in recent issues of the *Journal* on the question of Portland cement concrete, our Glasgow correspondent quotes the experience gained by the practice at the Rothesay Aquarium. He says: "Concrete tanks can be made practically water-tight by first using a good stiffish body of concrete, composed of just such proportions as should be used in order to make a good job, judging by the quality of the cement. Use clean sand, thoroughly free from soil, and then give a coat, one inch in thickness, of pure cement, finished and *polished* as hard as possible. By adopting such a course of procedure the tank is practically water-tight. This is what was done in the large reservoir-tank at the Rothesay Aquarium, and it succeeded famously, whereas under the ordinary method it leaked like a basket." — *Journal of Gas-Lighting.*

An old New England House. — One of the oldest houses in New England is said to be in Guilford, Conn. It was built in 1639. Another and possibly older house, for the date of its building is said by some to be 1634, is Gov. Cradock's old brick mansion in Medford, Mass.

An Architectural Model. — A model of the New York Post Office, on a scale of one thirty-second of an inch to the foot, is exhibited in a Broadway window. It was built from the plans, contains 284,000 pieces, and occupied the time of one man working six hours a day for eight years. It is intended for the Paris Exposition.