

THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. VII.

Copyright, 1880, JAMES R. OSGOOD & CO.

No. 231.

MAY 29, 1880.

Entered at the Post Office at Boston as second-class matter.

CONTENTS.

SUMMARY:—

The Madison Square Garden Accident, and the Department of Buildings.—Senator Morrill and the Congressional Library.—Building Accidents.—The Washington Monument.—The Archaeological Institute of America.—Brumidi's Successor.—The Proper Way of Securing Decorations for the Capitol.—Tornadoes and Western Buildings.—The New York Society of Decorative Art.—Artistic Relics of the Mound-Builders.	231
THE VENTILATING FIRE-PLACE.—II.	233
OLYMPIA.—II.	234
THE DRAINAGE OF TOWNS.—II.	236
THE ILLUSTRATIONS:—	
The Laboratory of Vassar College, Poughkeepsie, N. Y.—Store at Pittsburgh, Pa.—Cremation Furnace—Hospital in New York.	237
CORRESPONDENCE:—	
Letter from Paris.	237
UNREST.—I.	238
COMMUNICATIONS:—	
An Oil-Burning Cremation Furnace.—Steam Meters.	239
NOTES AND CLIPPINGS.	240

THE New York Building Department is not gaining much credit by its conduct since the Madison Square Garden catastrophe. Mayor Cooper some time ago requested the Department to send him for consideration the original plans and specifications for that building, which were filed at the office. Instead of this, copies were sent him, which he found reason to believe were not accurate transcripts of the originals. Requesting again that the original documents should be sent, he was answered through the counsel for the Department that they could not be allowed to leave the custody of the officers in whose charge they were, except on demand of a court of record. Mayor Cooper is a man who does not like to be trifled with, so a peremptory command was issued to the superintendent to appear before the mayor on a certain day, and bring the papers with him. This was done, and one of the causes for the unwillingness to exhibit the records was at once apparent; the alleged copy was found to be falsified in at least one particular: the records called for a wall thirty-four feet high, the copy read "twenty-four." Meanwhile, with the usual violence of the feeble in endeavoring to correct the consequences of their own inefficiency, the Department has ordered the remaining walls of the Madison Square Garden to be taken down, and the customary course of refusal and arbitration has commenced. Although this order is in accordance with the recommendation of the coroner's jury, it will seem to most experts strange that the supreme authority in matters of construction for the city of New York could not devise a system of buttressing which would make the walls absolutely secure without compelling the owners to demolish them, only to rebuild them in a manner which would not be likely to render them any safer than they could easily be made without incurring so large a loss of time and money. The owners have not shown any wilful neglect or disregard of the public security, and there is no excuse for wantonly putting them to needless inconvenience.

SENATOR MORRILL of Vermont, who by his long experience in Congress has gained a right to be respectfully listened to when he speaks of matters which concern the daily life of the national Legislature, has made some sensible remarks upon the bill for providing additional accommodations for the Congressional Library, which came lately before the Senate. Most of our readers know that some years ago a strong effort was made, at the instance of Mr. Spofford, the Librarian of Congress, to secure the erection of a building adequate to the accommodation of what is rapidly becoming one of the largest, and by its copy-righting function the busiest library in the world. Plans were advertised for and received, but nothing definite was done. The proposed removal of the library from its present accessible quarters in the Capitol did not please some members of Congress, who were not content with the reference collection which it was intended to leave there, and several schemes were prepared for constructing a wing, or rather L, projecting from either the east or west front of the building, the library to be placed in this, or the Senate or House to take possession of it, and the library to occupy the quarters thus vacated. Against

this scheme Senator Morrill advances many weighty objections, urging that such an addition, on either side, would ruin the effect of the Capitol, while the capacity of even the largest practicable extension of this kind would be inadequate to the future wants of the library, and deprecating any removal of the Senate or House of Representatives from the rooms in which they are now housed with ample dignity and a degree of comfort and convenience not surpassed in any legislative halls in the world. We trust that these arguments will prevail, and that to Senator Morrill will succeed others equally able, who may long continue to defend the noble and daily increasing beauty of our national Capitol from the attempts of thoughtless or ignorant innovation.

Two failures of buildings have come to our knowledge since our last writing. One was the result of a very common kind of carelessness, which foremen and architects should look out sharply for. The structure was in process of demolition, and four men were in the fourth story cleaning brick, which they piled up beside them as they worked. Laborers of the class usually employed at such tasks have little capacity for reflection, and their united labors soon heaped up around them a weight which the floor-beams were unable to resist, and they broke, overturning the wall with them, and the whole mass went through two more floors. One man only was seriously injured. By the other accident, the lives of fifteen men were endangered, and four men were severely hurt. As workmen were covering the roof of a large hall with tarred paper, the foreman observed a depression in the middle of the surface, and immediately afterward the roof fell to the cellar. The local papers attribute the catastrophe to "causes unknown," the contractor being, as they say, "skilled and competent." We may therefore regard the collapse as a miraculous interference of Providence with the natural laws which govern the force of gravitation and the transverse strength of beams. As, however, the structure is to be rebuilt, we will suggest to the "skilful contractor" the propriety of making a few mundane calculations as to the weight which his roof-beams may be expected to carry safely independent of supernatural interposition. Then he will at least be in a position to avoid such personal mishaps as a conviction of manslaughter in case of a second "accident."

A PETITION has been presented to Congress by the Washington Monument Association, praying that the Government will lend its influence to promote the completion of the monument according to the plan which we described and illustrated some months ago. In the hope of furthering an object laudable enough in itself, some of the daily newspapers make assertions hardly in accordance with the facts. It is not justifiable, for instance, to try to gain credit for the Monument Association by saying that it contemplates carrying out the original design of the structure: its scheme is, from an artistic point of view, utterly different. It is doing no honor to the memory of Robert Mills and his employers, but the reverse, to pretend that his noble conception of an obelisk, six hundred feet high, not standing on a commonplace plinth, but rising from a colonnade, itself of gigantic proportions, and to which impressiveness and scale were given by contrast with its sculptured ornaments, is fitly carried out by a pile of stone five hundred feet high instead of six hundred, without base, colonnade, or sculpture. One might as well say that the design of an equestrian statue could be substantially rendered by a torso without head, arms or legs, placed upright in the grass, because economy forbade the outlay necessary for providing the horse and limbs. We do not quarrel with those who find "deep harmonies" in stumps of any kind; indeed, it is perhaps patriotic to try to conceal the ugly baldness of the present monument by pretended symbolism and mystic significations, but it is hardly fair to father either the ugliness or the apologies for it on the original designers.

THE Archaeological Institute of America is gradually acquiring a firm establishment. Funds are coming in, and an active and enthusiastic membership gives sure promise of success in the great field which lies before it. Of all the liberal pursuits which may some time be popularized among us, that of archaeology will perhaps be the most beneficial in its influence. The American character is self-confident, unsympathizing, narrow, not from want of feeling, but because its imagination is so little

stimulated, and its experience so circumscribed; and of all means to correct this fault, the study of antiquity is perhaps the best. Of the two branches of this study, history and archaeology, the latter is perhaps most adapted to the national temper. To say nothing of the footing of comparative equality on which all persons meet before the impenetrable veil which covers the prehistoric periods, the study of actual remains excites the ingenuity and practical sense in which our countrymen are thought to excel. Our native resources in the way of material are not large, but an almost virgin field is open to us in Central America and Mexico, from which we can stock museums enough to afford study and instruction for all who desire it, and many European and Asiatic remains have found their way here. We should be glad to see every village library forming the nucleus of a collection of its own. It would not be long before each one would have collected some special treasures, and created its little group of students.

SIGNOR BRUMIDI's work in the Capitol at Washington does not easily find hands to carry it on. Independent of the question whether it is worth while to pursue it any further, it seems probable that the secret of the peculiar style of art which he thought suitable for the frieze of the Rotunda has perished with him. We need not repeat our own opinion, that although Signor Brumidi's work in other parts of the building quite justifies his reputation as an artist, the singular conceit which he so laboriously endeavored to carry out on the wall of the Rotunda was quite unworthy of him, and that the kind of artist who could most fitly succeed him in that place would be that industrious worker in whitewash, who would most quickly restore a virgin field for future decoration more worthy of the building. Since the lamented death of Hunt, the name of La Farge stands *facile princeps* among all those artists who have yet undertaken any considerable work of the kind. We gladly give the Committee on Public Buildings and Grounds the credit of being sincerely desirous of doing the best thing possible for the public, but we know the difficulties of such committees, besieged by "influences" of all kinds in behalf of rival candidates, and desirous of avoiding all suspicion of partiality. In such cases it is not surprising if sometimes they fly from the combats of the powerful, and seek safety without glory in putting forward a harmless "dark horse," too insignificant for any one to have a grudge against which they can visit upon the heads of those who appoint him.

THERE are, however, better things than having "dark horses" exclusively to do the national fine art, and we will venture to point out a way by which the committee could probably secure a creditable result without much offending the sensibilities of their fellow magnates who wished to push their friends and *protégés* at the national expense. This way would be a general competition, in which all would enter on the same footing, with a reasonable prospect that the best, or one of the best, would gain the prize. Such a competition is by no means a novelty, and those who have seen the noble sketches of the late William Hunt for his work at Albany, will readily perceive how slight a drawing need be required of each artist to show the inspiration and the scheme of color which form the two essential elements of such a design. It would be easy to appoint a jury whose award could not be questioned; and a well-considered invitation would arouse the enthusiasm of all the artists of the country. We should be decidedly in favor of allowing Americans only to enter the lists, for two reasons: first, because the American artists, not yet formed into anything like a national school, but almost to a man imitators of foreign masters, feel an undue awe of the famous foreigners, and would be disheartened at the prospect of competing against those great names, even though the jury were not awed by them; and secondly, because such a competition affords a rare opportunity for awakening the germs of a truly national art, and the restriction of the privilege to those who can feel the pride of American birth, and share the sympathies of American citizenship, would stimulate the imaginations of some competitors, at least, for once beyond mere technique, and perhaps kindle a flame which would blaze for a long time to come. The task is by no means a complicated one: the forms and the lighting of the rotunda and dome are simple, and a lithographed section in bare outline, with the development of a portion of the surface, would give all the artist would need to direct his imagination.

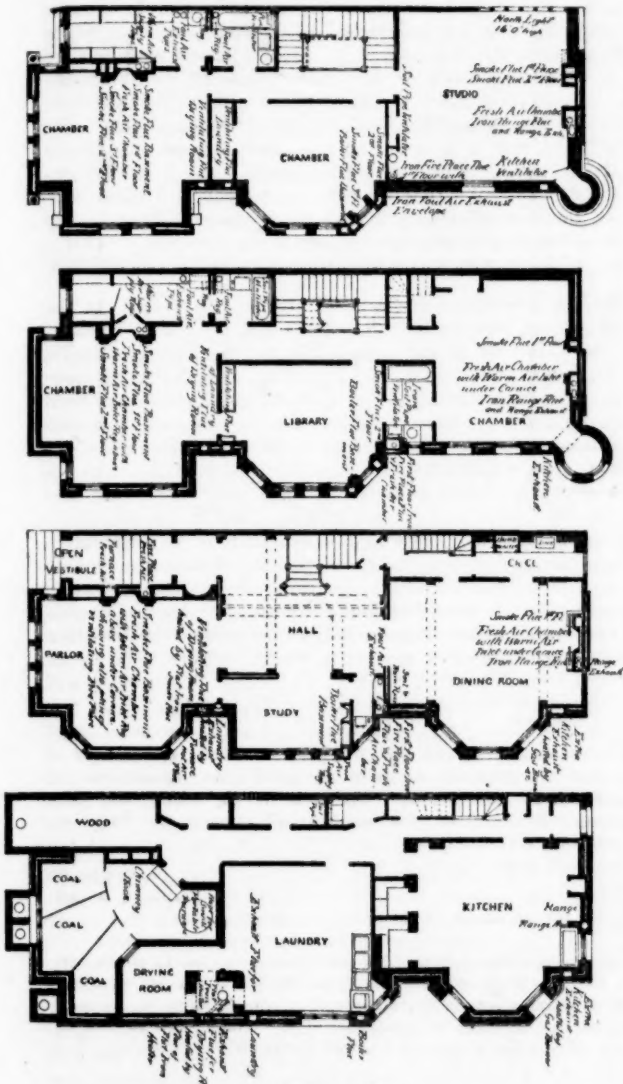
A NEW want is beginning to be felt in the prairie regions of the West. Every year scores of the houses which multiply so rapidly there are swept away by tornadoes; and as earthquakes to a degree dictate the forms of architecture in California, the wind is likely to influence the construction of buildings in the Mississippi Valley very materially. The ordinary balloon framing so much employed there is manifestly unfit to withstand the force of tempests; masonry, *pisé*, or concrete would be infinitely better, and would offer quite as many advantages in point of comfort and durability as the wood construction. The frame buildings would be cheaper than masonry in most localities, no doubt, and throughout vast districts even sand and gravel for concrete would be costly; but in these alluvial regions the use of *pisé*, for which any kind of loam is suitable, and which needs no lime except in the final plastering, might form an admirable resource. Such walls, with a roofing filled in perhaps with a similar material between the rafters, would form a habitation cool in summer, warm in winter, picturesque, and proof against anything but the most furious storms. We have heard that it is becoming customary for the inhabitants of those regions to provide cellars under some of the houses, and that in case of a thunder-storm the neighbors betake themselves to these cellars, so that they may be safe, even if they should find their houses missing when they emerged. This is a way of living with which Americans will not long be satisfied.

WE have to acknowledge with thanks the receipt of the report of the New York Society of Decorative Art. Considering the character of its membership and their occupations, it is gratifying, as well as a little surprising, to note the business-like energy with which the operations of the society have been carried on, and we trust its success may be commensurate with its efforts. Among other things, a lending library has been formed, from which books are sent to all parts of the country. This affords not only a means of interesting and instructing persons and communities very widely scattered, but of ascertaining the condition and wants, so to speak, of the decorative art market, and we are glad to see that the demand in regions lying distant from the great cities is mostly for suggestions in regard to the adornment of houses by color, drapery, and similar decoration, rather than for designs for painted tiles or show embroidery. This is a sign of a healthy condition of public taste, and the New York Society, with other similar ones, will much promote its own interests by endeavoring to meet this demand, which if properly cultivated is likely to grow to large proportions. So far as our not very extensive experience of such societies goes, the limits of the field which decorative art might occupy in every-day life have by no means yet been reached. Embroidery, for instance, which appears from the report before us to be confined, in the goods offered for sale, to mantel and other lambrequins, curtains and screens, might be applied to furniture of all kinds, with great advantage to art, and, we should think, with profit to the designers.

THE Cincinnati *Commercial* has published lately some articles, illustrated in as good style, perhaps, as can be expected from a daily paper, on certain remains attributed to the mound-builders, found near Wilmington, Ohio. The cuts are reproduced from some engraved for Dr. L. B. Welch, who has had them prepared for a forthcoming history of the antiquities of this nature which have been found in Clinton County, O., and probably do not give much more than a caricature of the illustrations of what must certainly be a very interesting book. As it is, the engravings indicate an artistic sense on the part of the designers of the objects, whoever they may have been, which we do not recollect to have been particularly struck with before in the mound-builders' works. Among other things is depicted an arrow, which, unless the engraver or draughtsman has improved upon the original, is profiled with great refinement, and decorated in a style which though common enough among barbarous nations to this day, shows a more civilized feeling than usual. The reproductions of the other illustrations are too rude for us even to guess at the style of the originals, but we notice among them a representation of a tablet, divided into squares, and filled with what would seem to be the characters of some written language. One of the characters is repeated in a larger size by itself, outside of the tablet. A few of the letters have a rather Chinese appearance, which may be interesting in view of the reported discovery of a stone in Central America with an inscription in the Chinese language, though in letters of a very archaic type.

THE VENTILATING FIRE-PLACE.¹—I.

FIG. 179 gives a plan of the parlor floor of the writer's house now being built in Boston after his drawings and specifications. Fig. 181 represents a portion of the fireplace-side of the front parlor, a room about seven meters square and four meters high, large enough to seat twenty-five guests comfortably. In it there are ten gas-burners. These were unwillingly left unventilated because of associations attaching to the chandeliers long used by the family. Provision has therefore been made for changing the air on special occasions at the rate of sixty-five cubic meters per minute through exhaust openings placed both at the ceiling and at the floor. The use of the unventilated gas-burners is a serious blemish in the system of ventilation employed. But as this unfortunately is a condition at present usually encountered by the sanitarian, who would find few persons willing to alter their fixtures for the sake of pure air, it is important to know the best way to meet it.



Figs. 177, —180.

The plan of the fire-place in this room is shown in Fig. 182. The back is constructed of a slab of soapstone, faced on the room side with ornamental unglazed tiles. The sides are built of fire-brick, faced with glazed tiles which reflect the light and heat of the flames and add to the effect of the fire. Behind the back and sides of the fire-place is a fresh-air space into which pure air is admitted directly from the outside through a register opening from the open vestibule as shown in Figs. 178 and 183, the latter being the front elevation of the house. The register is placed a meter up from the floor of the vestibule which is tiled up to the ceiling and open to the outer air, the front door being further in. The purity of the fresh air at all times is thus ensured. Its supply is regulated by a simple valve near the register, operated from the parlor by a cord at the right-hand side of the chimney-breast. The valve is nothing more than a plate of $\frac{1}{8}$ -inch iron, which is lifted when the cord is pulled from within and opens the register, closing it again wholly or partially when the cord is released.

The fresh air is first moderately warmed by coming in contact with the heated back and sides of the fire-place, and then rises into a

large fresh-air chamber above the mantel and behind the chimney-breast, represented in section in Figs. 184 and 185. Here it strikes the hot walls of an enlargement of the smoke-flue, similar in purpose to that described by Peclet (Fig. 125), though different in size, form, and principle of construction. After having been further warmed by contact with this furnace-attachment or heat-distributor in the smoke-flue, it enters the room through an ornamental cut-brass register in the chimney-breast, near the ceiling (Fig. 181), or it may be allowed to pass into the second-story room above, through a valve in the ceiling of the fresh-air chamber, shown at the top of Fig. 184, operated by a cord and tassel at the left-hand side of the chimney-breast. The furnace or distributor is in this case made of carefully

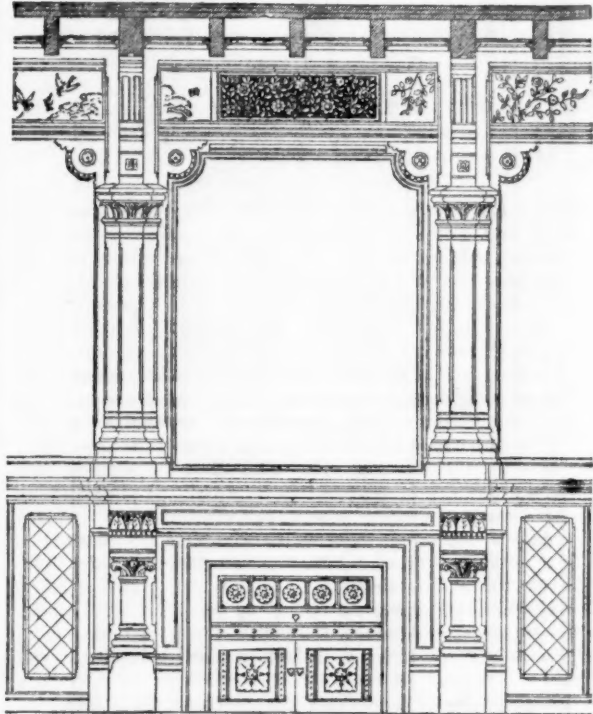


Fig. 181.

baked terra-cotta, especially prepared with a view to resisting the strongest heat and the most sudden changes of temperature without cracking. As a test, before making one of these radiators, the writer had a piece of terra-cotta, of the kind to be used, heated to different degrees of heat, including red-heat. Cold water dashed upon the sample raised to these temperatures produced no apparent injurious effect. On the other hand, if the clay is not of the proper kind and properly baked, a strong flame may quickly crack it when it is surrounded with cold air. Fig. 186 gives this distributor in perspective, somewhat modified in form, to show another way of arranging the dampers. The name "distributor" is given it, in preference to "radiator," as expressing more accurately its office: the heat is not obtained from it by radiation, except in a slight degree, but by convection, and "convector" would therefore be a more appropriate term. But any hot flue would in this sense be a heat "convector" as well as this. Its most characteristic function is to break up and spread out the current of smoke, and distribute its heat over a large surface, that it may be more readily taken up by the fresh air brought in contact therewith.

The movement of the smoke and of the fresh air are clearly represented in the sections by arrows. By referring to Fig. 144 of the soapstone furnace, it will be seen that the general principle of circulation is somewhat similar in the two devices. The column of smoke is subdivided and brought efficiently in contact with a large heating-

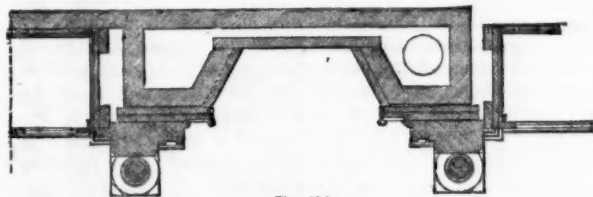


Fig. 182.

surface, without encountering sufficient resistance dangerously to obstruct its passage. The fresh air strikes almost every part of the heating-surface, without in its turn encountering serious resistance. By referring again to the Chilson furnace (Fig. 134), we see how the smoke is distributed equally among the six upright flues by a contraction of these flues at the top. To avoid the danger of clogging with soot, as well as the loss of heating-surface that would be involved

² This paper, by the writer of the Open Fire-Place articles, will be incorporated with them in their separate form.

by a diminution of the flues, the principle of an interior, instead of an exterior cone, in the form of a movable cone-shaped damper, has been adopted, so placed in each flue that, while it diminishes the opening, it leaves the heating-surface undiminished. By this means, on the one hand, clogging is avoided, and cleaning facilitated, and on the other a greater heating-surface is presented to the rising fresh

without destroying the draught, for the slight obstruction occasioned by each distributor is more than offset by the improvement of the

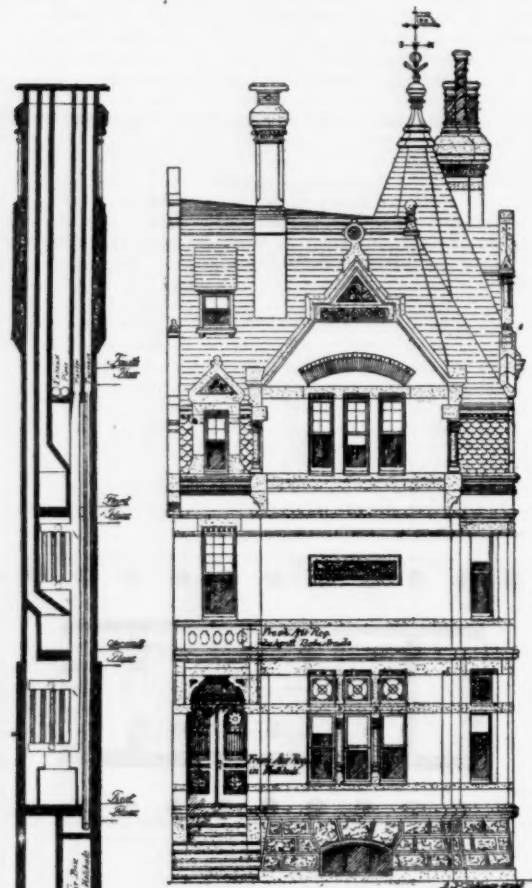


Fig. 183.

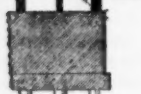


Fig. 187.

air, at less cost and in a more effective manner. The retreating surfaces of the cone, which appear rather to shun than to court the contact of the air, are avoided. Parallel surfaces are substituted, and these may be perpendicular, or they may be placed at an inclination, as in Fig. 184, and so arranged diagonally over each other (as in Fig. 185) that the fresh air is forced to embrace every part. To ascertain if this contact took place *actually*, and not merely theoretically, an opening in the fresh-air chamber enclosing the heater was made in such a manner that the movement of the current of air could be seen by the aid of a little smoke mixed with it. The air was found to circulate about the pipes exactly as expected, and as indicated by the arrows. The connecting pipes should never be placed horizontally unless the draught in the chimney is powerful, but either at an inclination or perpendicularly, as in Fig. 187, because in these positions very little obstruction is offered to the passage of the smoke. The dampers should always be placed as far from the throat of the fire-place as possible, in order to give the smoke opportunity to rise as far as possible and fill the pipes before meeting with the least obstruction.

If these precautions be observed, such a distributor may be used in the same flue at each story of a building of any number of stories,

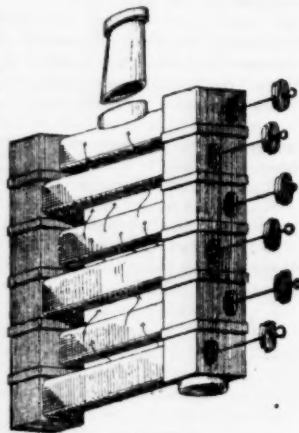


Fig. 186.

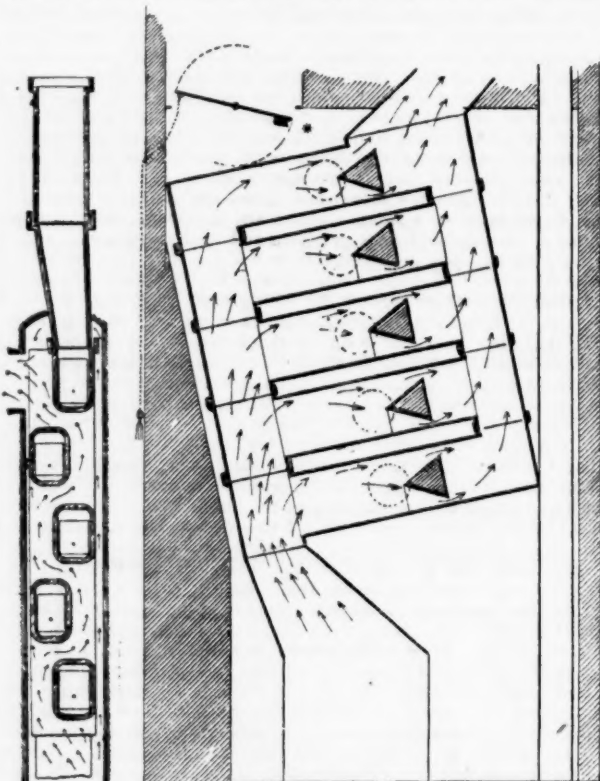


Fig. 185.

Fig. 184.

draught made by each additional story added in the height of the chimney.

OLYMPIA.¹—II.

This third volume will probably prove to be the most favored of all the annual reports of the excavations at Olympia, as it includes the magnificent Hermes of Praxiteles. It alone is sufficient to repay in scientific interest the entire labor and expense of the expedition. The statue, of which important fragments have but a few days ago come to light, is the subject of a monograph by Dr. Treu, printed as an appendix to the second volume.² There are many other remains of sculpture, especially of the Roman period, from the Exedra of Herodes Atticus. The latter fall far behind their Greek predecessors in artistic work, but are still valuable and interesting. Fragments of terra-cotta often preserve the colors painted upon them with great distinctness. Besides the representations of the sculptural and architectural discoveries the volume contains five heliotype photographs of the site of the excavations, and a topographical map which well displays the advance of the work. The first two of the former show the Heraion from the southeast. The spots where prominent remains were found or are known to have existed are marked upon the views by the figures of persons,—among whom a lady is conspicuous upon the bathron of the principal statue. The mighty stereobate of the temple with its low cella wall and the stumps of columns which escaped overthrow are plainly seen. The second photograph includes the pedestal upon which the Hermes of Praxiteles originally stood; the statue was found within the naos. The first gives in the foreground the well-preserved monolith of a circular fountain-basin, once before the front stylobate of the Heraion, upon a brick foundation with marble coping; further back is the crepidoma of the Philippeion, the relation of which to the hill and neighboring buildings is thereby evident. Upon the hill behind stands the German mansion of the superintendent of the excavations; to the left of it the chapel and some of the low houses of the village Druva. The third photograph shows the Philippeion and the Heraion from the southwest, beyond is the Exedra of Herodes Atticus, and in the extreme background the terrace upon which stood the treasure-houses. The fourth is of the square court in the eastern corner of the Gymnasium peribolos, an especially interesting view, as it makes clear many details of the pavement and chambers which would not otherwise be readily understood. The fifth includes the Exedra of Herodes Atticus, the western end of the treasure-house terrace, and in the foreground the northwestern corner of the Metroon stereobate, with its three steps and one remaining column.

¹ Die Ausgrabungen zu Olympia. III. Uebersicht der Arbeiten und Funde vom Winter und Frühjahr, 1877-1878. XXXVIII Tafeln, herausgegeben von E. Curtius, F. Adler und G. Treu. Berlin: Verlag von Ernst Wasmuth, 1879.

² Hermes mit dem Dionysosknaben, ein Originalwerk des Praxiteles, gefunden im Heraion zu Olympia. Herausgegeben von Georg Treu. Berlin: Ernst Wasmuth, 1878.

If the Exedra arc had here not been marked by a figure, it would have been difficult to recognize its extent, uncertain as this was rendered by the Corinthian pilasters of the rear, which remain in foundations beside the low brick walls. The topographical plan, representing the land after the third season, is on the same scale (1:1000) as that given in the second volume, and allows a good comparison. The increased surface which has been examined rendered a double plate (29-30) necessary. It is founded upon a trigonometrical survey of the Olympian plain which was commenced towards the end of the third season, the plan in the second volume still being dependent upon Allason's map in Stanhope's work, *The Ruins of the City of Elis*. The new survey has caused the change of several of the distances between Mount Cronion and the rivers: the relative position of the temples of Zeus and Hera and the Exedra, having before been founded upon measurements, is not altered. The comparison with the previous map shows what advance has been made,—especially great in the northern part of the Altis,—and what truly immense masses of earth have been removed. It is perhaps wise, as avoiding confusion, that the walls of the extensive Byzantine fortifications which stood upon the southern and southeastern part of the Altis are entirely omitted, but it would have been interesting to observe the relations in which these constructions were placed to the principal buildings of antiquity, and to understand to what extent the Olympian plain continued to be built upon at that late period. The Christian ruins might perhaps have been printed in a light color upon the topographical plate without interfering with the ancient temples and treasure-houses, the plans of which are given in solid black. In the western wall of the Altis enclosure, southwest of the temple of Zeus, there is a gate, called upon the plan the western portal, which has proved, after the removal of late Roman or Byzantine brick aqueduct arches from above it, to be a Greek structure. The position of the eastern enclosure at first appeared fixed by the discovery in two places of parallel walls which exist about where it was presumed to be. The identity is, however, not at all certain, as the foundations may have belonged to some building—perhaps to the Stoa of Echo, which Pausanias mentioned as in this vicinity. The Stoa itself may possibly have bordered the Altis. Of the southern wall nothing whatever is given in the publication, and thus the exact extent of the sacred enclosure cannot be determined. Further researches beyond its limits were made in the fourth season, the attention of the excavators then being first directed to the Stadion. At the time of the third report this was supposed to run nearly parallel to the eastern enclosure, between the foot of Mount Cronion and the Roman octagon, or the edge of the former bed of the Alpheios. The later researches show the direction of the Stadion to have been, on the contrary, from west to east. As the land to the north of it is too hilly for the arrangement of an extended level enclosure for races, it is reasonably concluded that the Hippodrome, which Pausanias speaks of at the side of the Altis, must be looked for at the south of the Stadion, near the octagon. Perhaps part of its extent has been cut away by the rushing waters of the river. Corresponding with these places for the public games and races, there are two large enclosures for the exercise and schooling of athletes, situated at the other side of the Altis. The smaller of the two has been discovered and its position and dimensions ascertained. The second, which must have been of very considerable extent, as it contained a preparatory Stadion, is supposed to be farther north in the valley of the Cladeos. Two of the brick ruins here which are published by Stanhope and Blouet¹ apparently belong to this Gymnasium. One of these structures, standing upon the western slope of Mount Cronion, and now used as a museum by the excavators, possessed arrangements for bathing which make it probable that its destination was in some way connected with this exercising ground. The land between the river and the hill, north of the smaller Gymnasium and the Heraion, is amply broad,—from two hundred to two hundred and fifty metres,—and gives place for the largest practising ground. The topography of the Olympian plain is, in its main points, now certain. This allows, for the first time, an understanding of the many references by ancient authors to the position of the buildings in the Altis, especially in the forty-two chapters of Pausanias bearing upon Olympia,² and in the delightful writings of Lucian, which have thereby gained a new importance.

A comparatively large part of this third volume is devoted to architecture. Much is published in it that was the more or less certain result of the excavations of the two former years. The eight folio architectural plates include plans upon a generous and uniform scale (1:150) of the great temple of Zeus, the Heraion, the Philippeion, the Byzantine church with its antique sub-structure, the Exedra of Herodes Atticus, and the western portal of the Altis enclosure. Beside these there are details of the first three buildings, and of the little circular edifices upon either side of the Exedra, as well as a comparison of three Doric entablatures, one of which is of the Metroön. The main results directly concerning ancient architecture which are to be awaited from the excavations at Olympia seem here embodied. There have been discovered three Doric peripteral temples, thirteen treasure-houses, the great brick Exedra of Herodes Atticus, and two gates of the western wall of the Altis. Outside the enclosure there is the Stadion, the Byzantine church supposed to have been built upon the Ergasterion of Phidias, the smaller Gymnasium and brick build-

ings of uncertain designation upon the banks of the Alpheios and Cladeos; the Roman octagon to the east, and a structure which seems to have served as a bath, to the west. Other architectural gains, not included in the third volume, are mentioned by short official reports and telegrams in various German periodicals. The principal of these appear to be the Buleuterion at the south, the Prytaneion, with the banqueting-hall of the victors, at the northwest, the pentagonal enclosure of the Pelopion, between the temple of Zeus and the Heraion, a triumphal gate at the southeast, and the foundations of two grand colonnades east and south of the Byzantine church. From the present lack of illustrations and descriptions of these latter discoveries it must suffice to merely mention their existence. Nor is it possible, before the results of the entire expedition are made public, to discuss the most interesting arrangement and composition of the architectural masses in their completeness, of the places and passages allowed the thousands of visitors to this great festival centre of the Greek world. Though all the remains that are found are in a state of the most entire ruin, the architectural results of the excavations have surpassed, in extent at least, the most sanguine expectations. When the Germans began work in 1875, the position of four buildings was known; now they have examined the remains of more than forty. With the exception of funeral monuments and fortifications—not to be expected from the Olympian plain, which was never inhabited as a town—almost all kinds of antique structures which are known are here represented: temples, entrance-portals, colonnades, monuments for display of various description. And to these are added many of which we have hitherto had no examples,—such as the treasure-houses, the Greek Gymnasium, the Exedra and water-works, the Pelopion, Buleuterion, Prytaneion, and others less certain, as the work-shop of Phidias and the Leonidaion. The most important structure is naturally the great Temple of Zeus, the plan of which at Fig. 1 is adopted with addition of the staircases from Plate 31 of the publication.

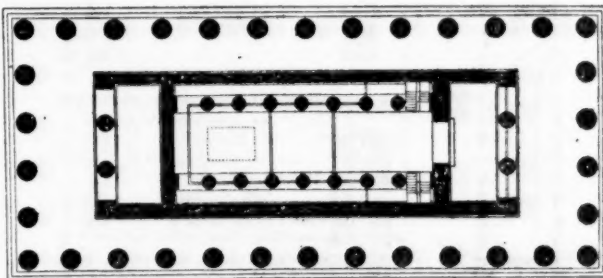


Fig. 1. Plan of the Temple of Zeus.

The arrangement of the plan, to the smallest details of balustrades, is more certain than that of any other temple known. It is a peripteros of six by thirteen columns, the cella divided into the usual pronaos, naos and epinaos. The former, with two columns in *antis*, was closed by a *grille*, provided with three doors, one in each opening; the latter seems not to have been at all thus separated from the pteroma. The columns within the naos supported a gallery over the side-aisles to which the staircases near the door gave access. The position of these wooden ascents is marked by stone foundations, heaps of ashes showing them to have been destroyed by fire. The central aisle rose directly to the horizontal ceiling, which rested upon the entablature of the upper hypæthra columns. There were seven shafts in each flight, in all twenty-eight interior columns. The pavement of the naos was two steps above the upper stylobate without, a height of .39 m.; the side-aisles were a step higher still, .27 m. above the interior floor. The nature of the naos pavement cannot be determined, so thoroughly have its blocks, prized as a raw material, been dragged off for other buildings. All that remains is its foundation, the upper layer of the stereobate: at the western end, under the bathron of the great chryselephantine statue, this consists of carefully clamped and dowelled blocks of poros, about one metre square and .30 thick. Between the third columns from the back wall of the naos there lies a transverse threshold which, with the balustrade, or *grille*, doubtless upon it, bordered the standpoint of the sacred image. The under floor to the east of this, a square just in the middle of the naos, is differently constructed. The course is formed of long slabs of hard white limestone which alternate with broader blocks of poros. This second division was also closed from direct communication on the line between the third columns from the entrance door. The lengths of the central aisle of the naos was thus divided into three distinct parts. In that furthest back there stood the statue of the divinity; in the second there were probably tables for offerings, stiles, and other sacred belongings; here the prizes were presented to the victors in the Olympic games; the open third near the door remained as a passage and standing-place for the witnesses. The side aisles were also of free circuit, being separated from the standpoint of the statue and from the second enclosure by a balustrade running between the columns. The side aisles could be entirely closed by low portals between the second columns from the east and the walls. As it was desirable to walk around the statue, to view it from behind the balustrade, the "fence built like a wall," which kept Pausanias from going under the throne, was continued across the cen-

¹ *Expédition Scientifique de Morée, ordonnée par le Gouvernement Français. Par Abel Blouet. Premier volume. Paris: Didot frères. 1831. Pl. 60.*

² *Paus. V. 7 to 27 inclusive, and VI. 1 to 21 inclusive.*

tral aisle. The existence of this transverse passage next the back wall, so important in the development of the Doric temple plan, is unquestionably evident from traces which remain upon the single floor block still in position. A more complete refutation of the separate *adricula*, necessarily assumed to protect the chryselephantine statue from the weathering effects of an hypæthron supposed to exist in the naos, could not be desired. This fact has been fully recognized in the publication. But it is inconceivable how Prof. Adler, who wrote the introduction to the architectural part of the volume, can continue to refer to an *adricula* in the Parthenon¹ (a similar fiction of his colleague Boetticher²), which originated from the same considerations of upper light. A discussion of the relation of the plans of the Olympian temple and of the Parthenon, including as it does some of the most interesting points of Hellenic architecture, would be too great a digression from the subject of the present notice. It is the writer's intention to return to the question upon another occasion.

J. T. C.

THE DRAINAGE OF TOWNS.³—II.

PREVIOUS to developing a scheme for sewerage for a new locality, a careful study of its local topography is absolutely essential. For this purpose a map should be prepared on a scale not less than two hundred feet to an inch, or one to twenty-five hundred, on which the elevations of the streets above datum may be noted in figures at their intersections and at such points as define a change of inclination. Also levels of the water-courses where crossing the streets, and the high-water levels of the streams. Contour lines for every five feet of elevation should be drawn from actual survey over the whole district, and the area and character of the water-shed of any small streams that are to be provided for should be definitely ascertained. The rain-fall should be studied by consulting the observations at the nearest stations where such a record has been kept for a term of years, and a decision arrived at as to what portion, if any, of such rain-fall it is best to take into the sewers. We must also consider the present and prospective population of the place during such period as it is thought best to provide for, with a view to having the works conform in capacity as well as in their general scheme, as far as executed, to a plan that would, when more fully developed, meet the wants of the probable increase in population.

Even when providing for sewage and rain-water together, it is not customary to carry the whole volume of rain-water of violent storms throughout the whole length of the main sewers. When any natural water-course is crossed or found in the immediate vicinity of the main sewers, the overflow of the sewer into such water-course is generally provided for. It is readily seen that when a sewer is gorged with rain-water, flowing with a volume ten times as great as that of the dry-weather flow or *sewage* alone, the whole of this *sewage* is so far diluted that its discharge into the water-course is not likely to be of any inconvenience or harm in a sanitary point of view, for the stream into which such discharge takes place, would, even if small before, be now swollen by the freshet, and carry along all such occasional impurities with the mud and silt that are always taken into streams at such times. If the sewer had before the rain become slightly foul for want of flushing during a period of drought, the first effect of the accession of storm-water would be to rinse out the sewer, while the freshet is rising, so that the whole length would be likely to be tolerably clear of previous accumulations, some time before the point of overflow is reached.

The quantity of storm-water that is to be provided for is a question to be determined in each separate street for itself. The quantity in the main sewers will depend upon, first, the amount brought in by the laterals or branches, and, second, on the opportunities afforded on the route for the overflow of the surplus.

Among the first questions to be entertained and decided in planning a system of sewers is that of the *ultimate disposition* of the *sewage*. This is a question upon which a great amount of money has been expended in carrying out the various schemes that have been from time to time devised for the utilization of *sewage*. The quantity of organic refuse thrown off in the sewers of a large town is so large that it cannot with impunity be absorbed and carried along by small streams without danger to the health of the population residing on their banks. Even the tidal estuary of the Thames was so polluted by the *sewage* of London a few years ago that the further discharge along the banks where the sewers debouched was abandoned, and enormous intercepting-sewers were built to carry it along down-stream to Barking, on the north or left bank, and Crossness on the right bank, some twelve miles below London Bridge. These intercepting-sewers are about eighty-five miles in length, and cost upwards of four millions sterling. Even after all this expenditure the *sewage* is not entirely gotten rid of, but is wafted up and down the estuary by every tide. Its lesser specific gravity causes it to float upon the sea-water brought in by the tide, and its manifest presence in some twenty miles of the lower Thames has given rise to a good deal of discussion during the past two years.

In a report by Capt. Culver to the Thames Conservancy Board, published in London (*Engineering*, for January, 1878), I find the fol-

lowing: "Capt. Culver finds that while we have to some extent relieved the river westward of Blackwall up to the bridges, in some of the lower reaches the Thames is worse than it was before the main-drainage scheme came into operation. Close to the two outfalls there is a large collection of offensive mud, arising from the deposit of *sewage* matter. This we can fully verify from the fact of having taken samples last August from the banks of the Thames, near Barking. The matter was about as thick as, and of the color of, moistened paste blacking, and the odor horribly offensive—far worse in fact than the worst specimen we ever saw at Hungerford bridge in 1855-7." Capt. Culver states further that the *sewage* which passes out of the outfalls at Barking and Crossness rolls up and down with each tidal flow within a reach of eight miles. The solid contents are deposited in all the bays and creeks where the water is still, and they fall to the bottom during the time of low water. On the return of the tide they are carried up with it, even so far as Charing Cross.

The above seems to indicate that tidal estuaries are not the best places in which to discharge *sewage* when in such large volumes as is the case at London, and points to either the further extension of these main sewers towards the sea at some future day, or the utilization of the *sewage* upon the land. A portion, though a small one, of the *sewage* delivered by the great main at Barking, being the *sewage* of about twenty thousand people, has for some years been used experimentally on a farm, where the crops are irrigated by the crude *sewage*, but the experiment has not proved to be a profitable one.

The value of *sewage* to the farmer has been for many years considered in theory as sufficient to warrant its collection for chemical treatment and evaporation of its water, retaining the solid parts for sale as manure. Thousands of dollars have been spent in England in futile efforts to devise a method of doing this with a profit. But every company that has undertaken it in England has failed, so far as the value of the residual products goes. Such processes are continued only because they may afford, in many cases, the cheapest method of getting rid of the *sewage* for the community, and regardless of the profit by sale of products. I find the following in the *London Engineering*, of January, 1878. After referring to the successive failure of various methods of precipitation, etc., the editor says: "Other chemical processes are being tried at Leeds, etc., but we have not heard of a single case in which so much success has been arrived at as to encourage any hope that chemistry will help us out of the *sewage* difficulty. It is evident that both this science and engineering have hitherto been baffled by the *sewage* question." This, of course, refers to the attempts at converting *sewage* to use as a manure with a margin for profit. There is no doubt about the necessity of disposing of it regardless of profit, the only question being how to do so with the least cost, and in a manner which will give good sanitary results.

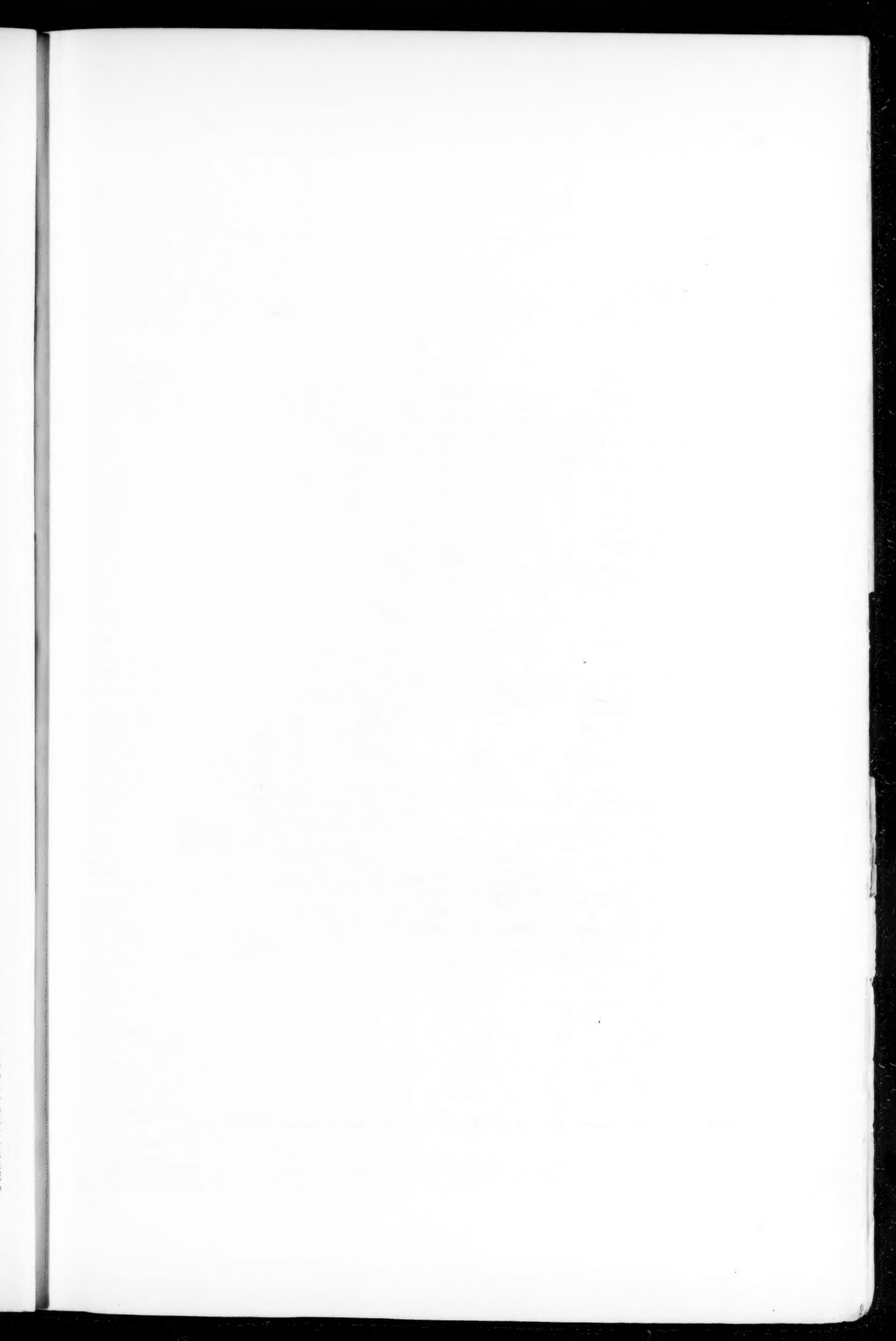
A proper regard for the welfare of the population residing along the banks of any stream into which the bordering towns have always drained their surface-water has led to prohibitory legislation in England, enforced by the courts, where these same towns began by developing systems of sewerage, to pollute those streams to an appreciable degree. The result has been that many towns are treating their *sewage* chemically for the purpose of avoiding such pollution, even though the residuary products are not of sufficient value in the market to recoup the cost of the process. The various methods of chemical treatment have been described at some length in the Seventh Annual Report of the State Board of Health of Massachusetts. If they had been attended with more success as measures of public economy, it would perhaps be more worth while to describe them here in detail, but their whole history has been either experimental and disastrous to their promoters, or tolerated in other cases as the lesser evil of the two which were presented to the particular town which adopted them.

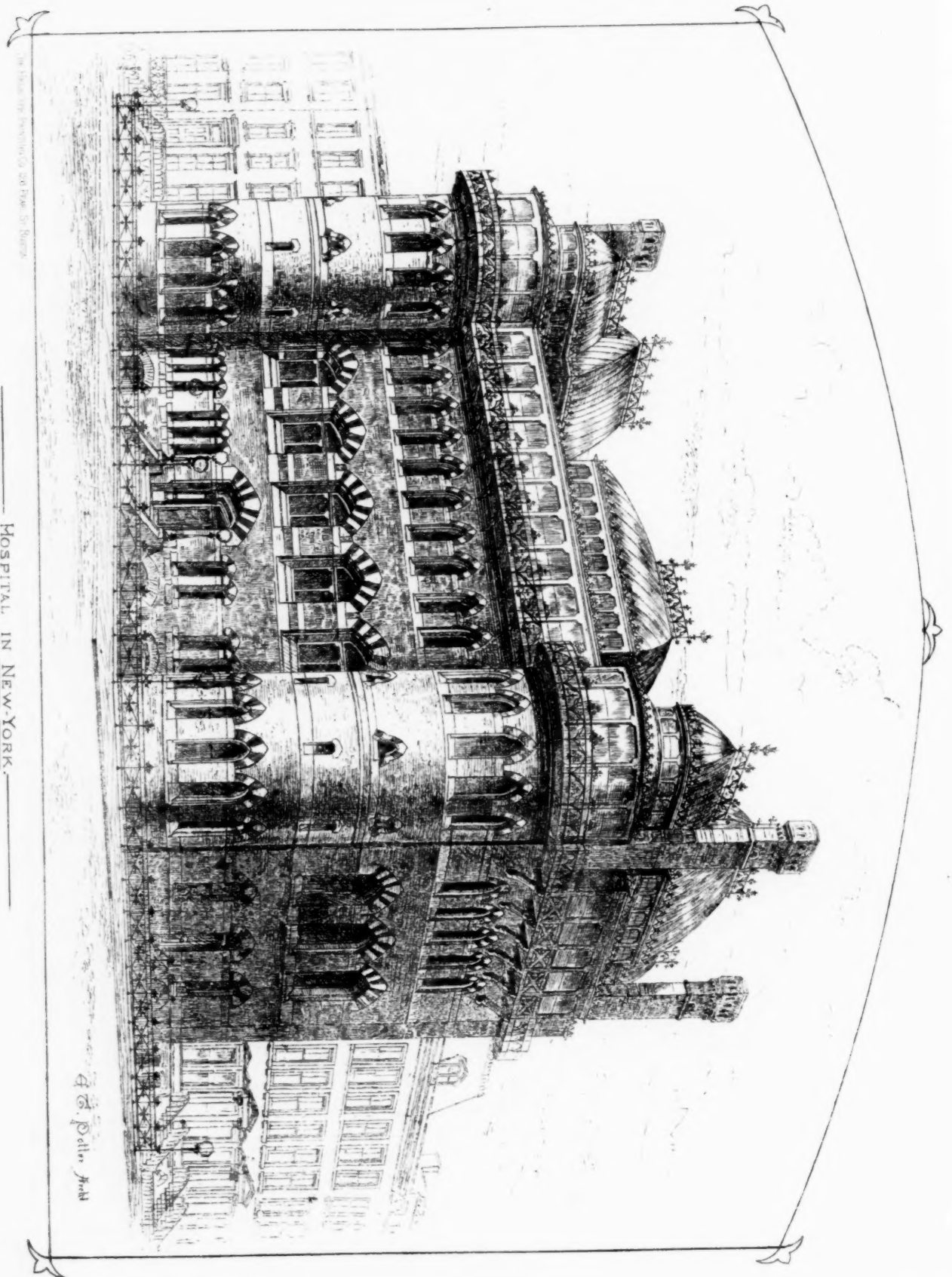
The most successful method, commercially considered, which has hitherto been tried for *sewage* utilization is that of applying it directly to the soil. Two methods are in use for this purpose. The first is by irrigation of a surface which had been previously prepared by underdrainage so as to grow a succession of crops of some commercial value, giving rise to the name of "*sewage farms*." As the value of the crop has generally been regarded as of some considerable importance, for sake of economy, the *sewage* can only be applied to this land at such times as are consistent with the conditions of the growing crop, and since there are many times when its application would be an injury, rather than a help to the crop, much inconvenience is met with unless an ample area is devoted to the farm. In many cases an acre is required for the *sewage* of every one hundred or two hundred of the population, so that in providing for large towns it is often difficult to find land enough for the purpose, which combines the necessary physical characteristics as to porosity, facilities for under-drainage, and cheapness. This has led to the economizing of the breadth of surface treated, by using certain crops of somewhat inferior value, which would endure a more frequent soaking of the soil, and the choice of very porous material where very deep and rapid drainage was feasible. Mr. J. Bailey Denton, of England, has found by applying to such land a discharge of *sewage* at comparatively short intervals, having several fields for successive treatment in rotation, that the pores of the soil are capable of oxidizing or burning up, as it were, a vast amount of organic matter, by means of the fresh volume of air that was made

¹ *Deutsche Bauzeitung*, 1879, No. 79.

² C. Boetticher. Ueber den Parthenon zu Athen und den Zeustempel zu Olympia, je nach Treck und Benutzung. *Ertkam's Zeitschrift für Bauwesen*, Berlin, 1852. An essay continued upon pp. 194 and 436, and in 1853, pp. 127 and 269.

³ A lecture by Mr. Edward S. Philbrick, C. E., delivered before the students of the Massachusetts Institute of Technology.

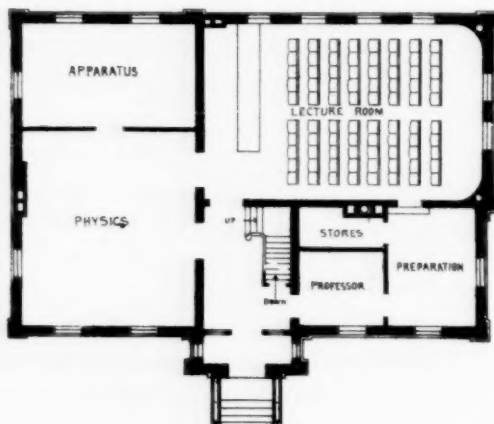




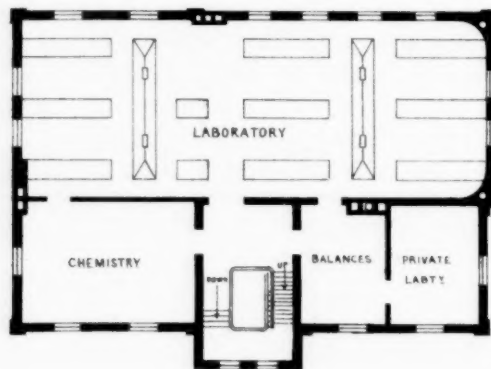
HOSPITAL IN NEW YORK.



PERSPECTIVE SKETCH



GROUND FLOOR PLAN



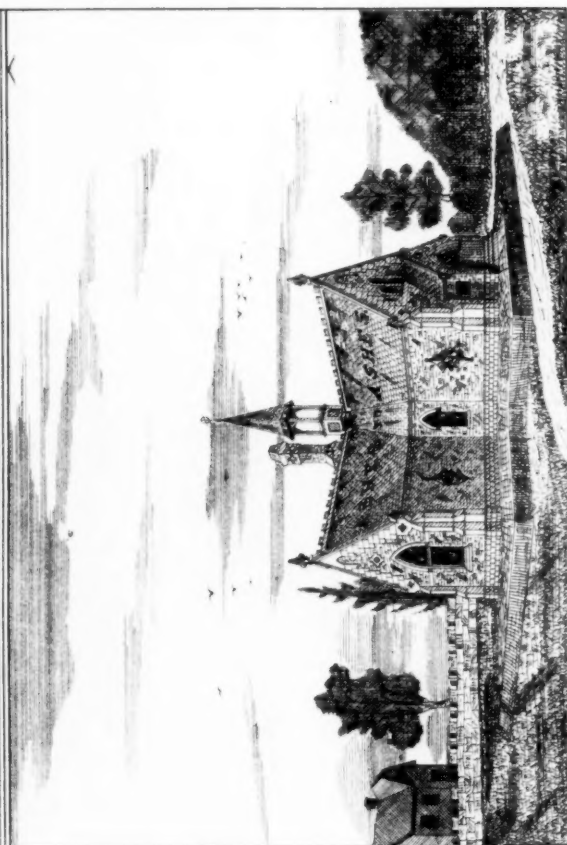
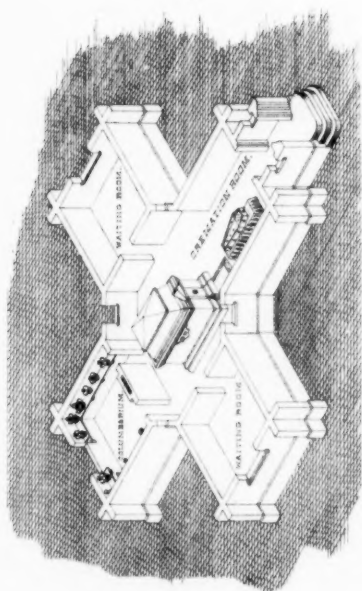
SECOND FLOOR PLAN

Created.
A. B. 1879-1880.

VASSAR BROTHERS LABORATORY
VASSAR COLLEGE Poughkeepsie, N.Y.

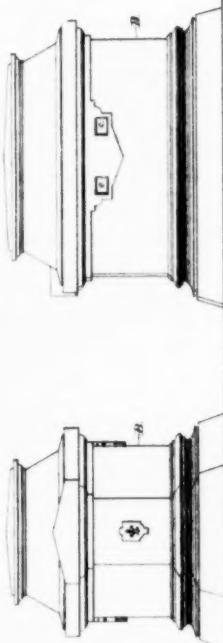
SILLIMAN & FARNSWORTH.
- ARCHITECTS -
NEW-YORK.

SHEET 6

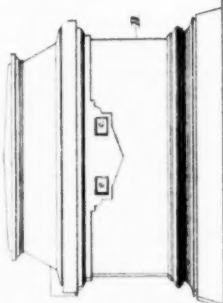


SHEET 1

CREMATION FURNACE.



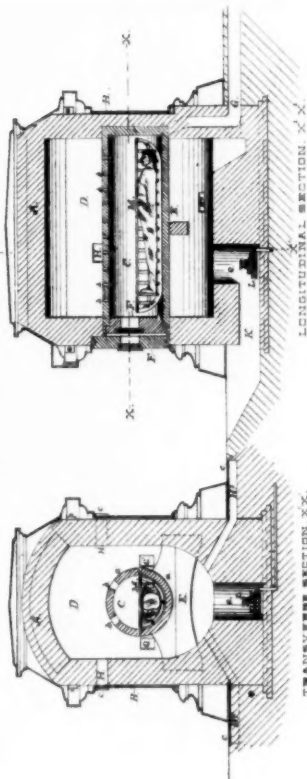
FRONT ELEVATION.



SIDE ELEVATION.



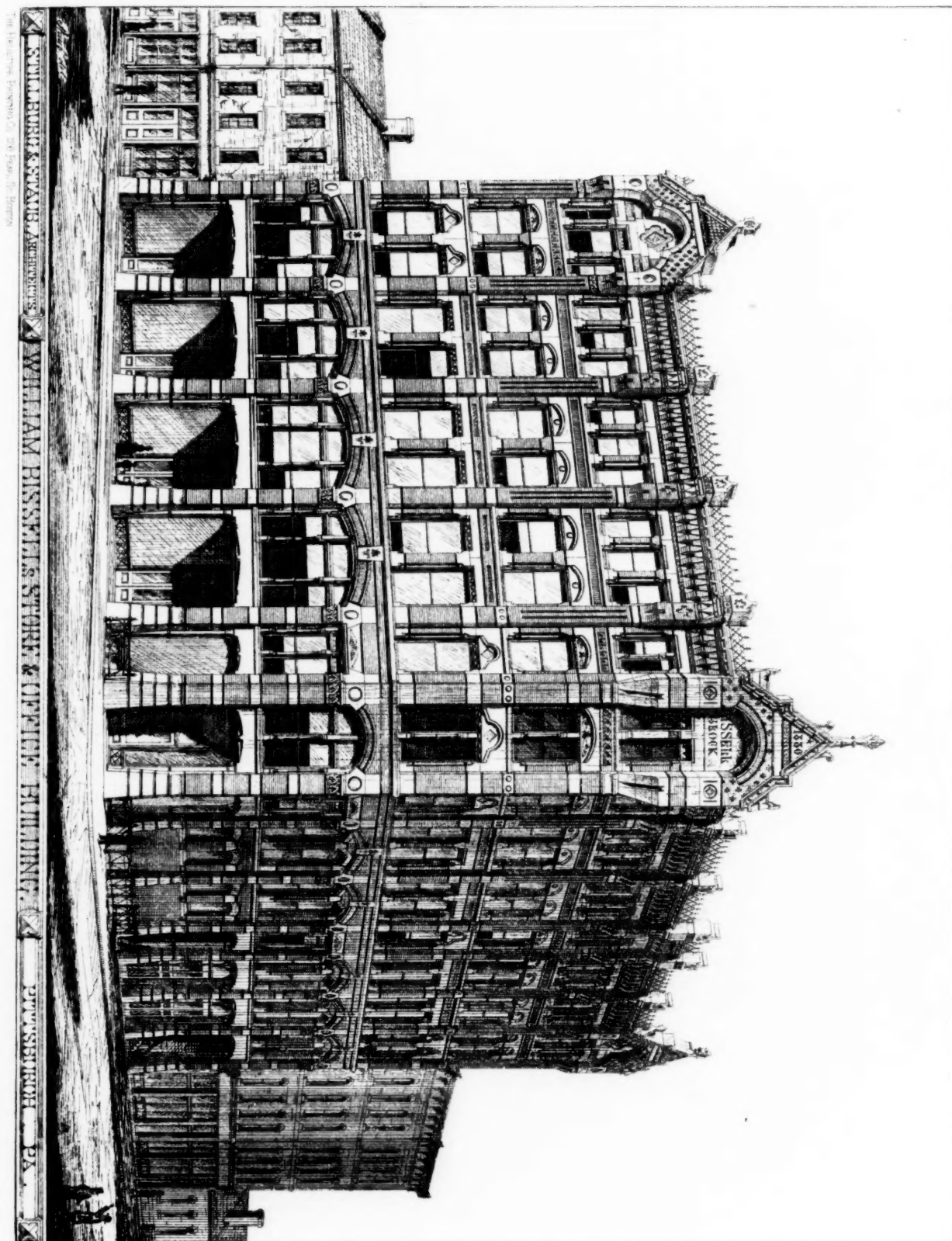
HORIZONTAL SECTION X-X'.



LONGITUDINAL SECTION X-X'.

802 MICHAEL AVENUE, PHILADELPHIA, PA. U.S.

THE HOLLAND FURNACE CO. 101 N. 3rd St. PHILA.



to enter these pores from above, following the downward flow of the sewage as it percolates through the soil.

This is therefore called the method of "intermittent downward filtration." Mr. Denton tells us that an acre of good porous material can thus be made to absorb the sewage of at least one thousand persons, and yield at the same time from the under-drains a water that is sufficiently pure to be admitted to the natural streams without detriment. But if this method were to be applied to many large towns, it would require a considerable surface—nearly a square mile, for instance, to dispose of the sewage of Boston, even supposing we could find within a reasonable distance the proper quality of soil for the purpose. If the ordinary sewage-farm method be pursued, Boston would require some five or six square miles, or over three thousand acres, to absorb her sewage, even with the most porous soil, and some six or seven thousand acres with an average soil.

The feasibility of using sewage on the land is therefore a local question, depending on the topography of the surface, the character of the soil, and the market value of the land for other purposes.

In 1876, a committee was appointed by the Local Government Board of England to inquire into the several methods of treating farm-sewage. This committee arrived at the following conclusions:

"1. That the scavenging, sewerage and cleansing of towns are necessary for comfort and health, and that in all cases these operations involve questions of how to remove the refuse of towns in the safest manner and at the least expense to the rate-payer.

"2. That the retention for any lengthened period of refuse and excreta in privy cess-pits, or in cesspools, or in stables, cow-sheds, slaughter-houses, or other places in the midst of towns, must be utterly condemned; and that none of the so-called dry-earth or pail systems, or improved privies, can be approved, other than as palliations for cess-pit middens, because the excreta is liable to be a nuisance during the period of its retention, and a cause of nuisance in its removal; and, moreover, when removed, leaves the crude sewage, unless otherwise dealt with by filtration through land, to pollute any water-course or river into which such sewage may flow. We have no desire to condemn the dry-earth or pail system for detached houses, or for public institutions in the country, or for villages, provided the system adopted is carefully carried out.

"3. That the sewerage of towns and the draining of houses must be considered a prime necessity under all conditions and circumstances, so that the subsoil-water may be lowered in wet districts, and may be preserved from pollution, and that waste water may be removed from houses without delay, and that the surfaces and channels of streets, yards and courts may be preserved clean.

"4. That most rivers and streams are polluted by a discharge into them of crude sewage, which practice is highly objectionable.

"5. That so far as we have been able to ascertain, none of the existing modes of treating town sewage by deposition and by chemicals in tanks appear to effect much change beyond the separation of the solids and the clarification of the liquid. That the treatment of sewage in this manner, however, effects a considerable improvement, and when carried to its greatest perfection, may, in some places, be accepted.

"6. That so far as our examinations extend, none of the manufactured manures made by manipulating towns' refuse, with or without chemicals, pay the contingent costs of such modes of treatment; neither has any mode of dealing separately with excreta so as to defray the cost of collection and preparation by a sale of the manure been brought under our notice.

"7. That town sewage can best and most cheaply be disposed of and purified by the process of land irrigation for agricultural purposes, where local conditions are favorable to its application, but that the chemical value of sewage is greatly reduced to the farmer by the fact that it must be disposed of day by day throughout the entire year, and that its volume is generally greatest when it is of the least value to the land.

"8. That land irrigation is not practicable in all cases, and therefore other modes of dealing with sewage must be allowed.

"9. That towns situated on the sea-coast, or on tidal estuaries, may be allowed to turn sewage into the sea or estuary, below the line of low-water, provided no nuisance is caused; and that such mode of getting rid of sewage may be allowed and justified on the score of economy."

Signed by

ROBERT RAWLINSON,
CLARE SEWELL READ.

It appears, then, that sewage can best be disposed of, according to circumstances, in one of the following modes:—

1. By discharging it into the sea or other bodies of water large enough to dilute it to such an extent that it will not be likely to again become a nuisance.

2. Where the conditions do not admit of the above, and where porous soil, capable of underdrainage, can be found convenient, to apply the sewage directly to the soil by irrigation, to be absorbed by the crops.

3. Where land is more limited in extent, and the soil still porous, the process of intermittent downward filtration is a safe method, though not so likely to give crops of any value on the land as the second method.

4. Where neither of the above methods is available, the sewage may be treated by chemicals, precipitating the solids in suspension, and so far modifying the impurities in solution as to render them harmless when discharged into small rivers and streams.

Past experience does not, however, justify us in expecting any profit to accrue to the town from any of these processes of disposal.

We have thus seen that before maturing the plans for sewers for any district, we must have the following points well studied, and the facts presented in a clear form:—

1. The topography of the surface. 2. The average and the extreme rain-fall. 3. The physical characteristics of the soil, and the character of the surface; whether more or less steep, and more or less covered with buildings and pavements, which would favor a rapid surface-drainage. 4. The denseness of the population and its future prospects of growth. 5. The disposal of the rain-fall, and how much shall be taken into the sewers, if any. 6. The ultimate disposal of the sewage itself.

THE ILLUSTRATIONS.

VASSAR BROTHERS' LABORATORY, VASSAR COLLEGE, POUGHKEEPSIE, N. Y. MESSRS. SILLIMAN & FARNSWORTH, ARCHITECTS, NEW YORK, N. Y.

This building was built for Mr. Matthew Vassar, Jr., and Mr. John Guy Vassar, who presented it upon completion to Vassar College for the use of the department of chemistry and physics. The walls are faced with Poughkeepsie sand-brick laid in red mortar and relieved with terra-cotta, black brick and North River bluestone. The interior is finished in white pine stained and finished in bees-wax. Accommodations for eighty pupils are furnished in the lecture-room on the ground-floor and also in the laboratory on the second floor. The system of heating is by direct radiation. The ventilation is arranged with considerable care, and flues are provided for the pure and foul air in every room.

STORE AND OFFICE-BUILDING, PITTSBURGH, PA. MESSRS. STILLBURG & STAUB, ARCHITECTS, PITTSBURGH, PA.

This store, which is now building, measures ninety by one hundred and twenty feet, and is built of Philadelphia brick, decorated with shaped brick furnished by the Peerless Brick Co., and with Ohionstone. Stores occupy the lower floor, wholesale rooms the next, and offices the remaining floors.

CREMATION FURNACE. MR. S. M. HOWARD, ARCHITECT, WHEELING, W. VA.

For a full description see the article in another part of the paper.

A HOSPITAL IN NEW YORK. MR. E. T. POTTER, ARCHITECT, NEWPORT, R. I.

This hospital, which was built some years ago, is intended for crippled children, with a winter-garden on the roof, and in the rear a fire-proof tower, containing fire-proof stairs and a large lift, with access from both to the garden and to the wards on every story. The wards have windows on four sides. The baths, closets, and attendants' rooms are in the projections at the angles. These are rounded so as to cast less shadow, the intention being to use the building somewhat as a sun-cure. For this reason also, the windows are made large and the tower with lift and stairs are placed on the north side. The well of the stairs, enclosed with a brick wall, together with the outside wall of the tower, also of brick, supports the steps and landings. The windows in the tower follow the rake of the stairs. The door-ways are low and have iron doors, to shut out fire in any ward from the stairs. The doors, stairs, and lift are wide to admit of the passage of patients on stretchers. The court-yards are open to the street. Doors at the foot of the stairs open on the courts. While the costly and difficult task of making a building of many stories fire-proof was not attempted, the safe escape for the slow moving and helpless was sought by effective but comparatively inexpensive means; but the most careful planning may be made useless by a single thoughtless act. Subsequent to the completion of the building the resident physician had the brick shaft containing the lift lined with vertical floor-plank "as more pleasing to the eye than a brick wall." The building faces south; the south and east fronts are those shown in the view. The furnace and engine-rooms, etc., are under the court-yards, lighted with sky-lights, and are fire-proof. There are four or more large fireplaces in every ward, as aids to ventilation, to which end the domes of the winter-garden also assist. In warm weather the garden can be thrown open on all sides.

CORRESPONDENCE.

THE PICTURE GALLERIES.

PARIS.

It will perhaps surprise many who look on Paris as the great centre of art to hear that during the three winter months it offers no opportunity of seeing recent pictures; for those in the Luxembourg are generally well known before they are admitted. To be sure, the visitor to Paris may join the groups which are forever flattening their noses against the picture-dealers' windows, but there is rarely anything to be seen of interest there, and even a cursory visit within is not more satisfactory, for the principal dealers are in the habit of showing their best works only to their patrons or after a special request to see what they have by a certain painter or in a certain style. The dealers may be credited with knowing best their own business, but I believe many rich foreigners pass through the city without a fixed purpose, or with only vague intentions, of buying works of art, who would be easily tempted to do so had they more direct opportunities of seeing them. It is thus with impatience that the art-loving public here looks forward to the early spring exhibitions of the two chief artists' clubs. These clubs, though in a great measure composed of amateurs, include many of the best artists, some of whom belong to both. The "Cercle de l'Union Artistique," commonly called "Les Mirlitons," has more social prestige than the "Cercle Artistique et Littéraire," dubbed the "Crémier." There are two painters who in both exhibitions conspicuously challenge public attention and divide its sympathies. Carolus Duran and Bonnat are now the two representative portrait-painters of France, and so closely matched are their different qualities that each fresh work has a marked influence on their relative position before the public. Thus, had an accident prevented the appearance at last year's Salon of Carolus Duran's portrait of a lady in a fur mantle, Bonnat

would have continued, during this year at least, undisturbed in the preëminence which his grand portrait of Thiers had given him the year before; but that portrait by Carolus Duran was so marvellous, so masterly in every way, that it carried all before it, and its author found himself suddenly within reach of the "*medaille d'honneur*." I say suddenly, but not unexpectedly, for he long ago declared his only rivals to be the old masters; even in this magnificent vanity Bonnat is his rival, however, for the latter looks with equal and supreme disdain upon his contemporaries. It is not surprising, then, that while waiting to see what these remarkable men have sent to the *Salon*, the public should eagerly examine their minor works in the club galleries, and curiously note all evidences of a modification in style.

At the "Mirlitons" Carolus Duran exhibits the half-length portrait of a lady in white satin, which shows a continued development of the change of style by which he so remarkably escaped in his last year's portrait his former crude and often vulgar painting. In his earlier works everything was sacrificed to breadth of effect and frank simplicity in laying the colors; the planes and general values were strongly established, but there was no care to model them into each other. Now, in place of the chalky lights upon flat opaque flesh-tints, even the high lights are subtly modelled, and the half-tones melt with tender gradations into the transparent shadows. Having made himself a master of breadth of effect, the painter now disguises that simplicity by delicate modelling, and the result is to envelope the former "painty" surfaces in a luminous medium full of tender sentiment. It would be interesting to know how far these modifications in style are the results of a premeditated development of the painter's technical power, and how far due simply to the growth of his artistic intelligence. In the portrait before us the white satin of the lady's dress is rendered with a careless ease, which could only come from close study of Velasquez at Madrid, but so true is the effect that a model posed beside the canvas would, if viewed from across the hall, appear less real than the picture, unless indeed the lights upon her dress and face were arranged with the same art which gives such brilliant relief to the painting. A portrait of a child hangs just beyond, but will add little to the reputation Carolus Duran has already gained for seizing, as only so swift a hand as his can, the open-eyed gaze of children. His contributions to the other club are less important, being a portrait of his mother and a man's head. So far this painter's life has been one of strenuous effort to develop and perfect his powers. He has now obtained the highest honors, and nothing but the rarest artistic conscience can enable him to resist the temptation to be content with himself, which means a careless abuse of his skill and ultimate loss of power.

In the place of honor facing the lady's portrait by Carolus Duran, hangs Bonnat's chief contribution to the gallery of the Place Vendôme, which is a portrait group of two children. From a distance, their spirited pose and the brilliant effect of light upon their blond heads gives a certain distinction to the picture, which, however, further examination does not justify. One sees, to be sure, a master's hand, but the bloodless flesh-tints are crude and dirty, and the drawing careless; so that the picture is unworthy of the painter whose collection of masterly portraits was the finest at the Universal Exhibition two years ago. The unsatisfactory coloring of this picture is the more striking since Bonnat has had recourse to his favorite trick of relieving figures against a certain brown-madder background, which for years he has introduced into his pictures and portraits. Be it an Italian peasant, a lady in full toilette, or Jacob wrestling with the Angel, the copper kettle of the first case, the boudoir chair and angel's wings of the other examples, are enveloped in the same identical ruddy mist. Successful as such a *fond* may be in helping him to his brilliant reliefs of flesh-tones, the trick finally becomes wearisome, and signally indicates the man's poverty of imagination. On looking at the heads of two men which the same artist exhibits, one asks if the abnormal pallor of the above-mentioned children was not intended as a foil to set off the really great power with which Bonnat paints "beefy flesh." If the shade of Velasquez may be imagined proud of the works which Carolus Duran's study of him has produced, so the rival of Velasquez, Ribera, may be supposed to look down with content on the vigor with which Bonnat presents such an incarnation of blood and muscle as will only be caught from the Spanish master's work, for Bonnat, a native of Bayonne, was early within reach of the Madrid gallery. The two heads of which I speak are only sketches, and are not *empâté*, like his pictures. The gray *fond* of the canvas is almost, as in water-colors, modelled into a head, and dashed with high lights by a few — marvellously few — strokes of a small brush, yet the effect is almost revolting from its realistic fleshiness. Skill of technique has never been carried further, and these brilliant trifles but increase the eagerness with which the public are waiting to see what Bonnat has done in his portrait of M. Grévy and a "Job" to be exhibited at the *Salon*.

Meissonier exhibits only at the "Mirlitons," and his contributions are relatively, for him, insignificant. One, a traveller on horseback, lacks the breadth and precision which usually distinguish his minutely-finished pictures; but the other, a cavalier in a stairway, is more worthy of himself. In the same gallery, Gérôme exhibits a small figure-study whose expression and attitude is defined with masterly precision. As an offset to the prestige which the smallest canvases of these two last-mentioned artists give to an exhibition, the "Cercle Artistique et Littéraire" offers a striking work — *La Vérité*, by Baudry. Though small, this nude female figure, modelled in full

diffused light, without shadows, is a *chef d'œuvre* very welcome to artists and amateurs. Baudry has exhibited but little of late, and his great works in the *foyer* of the Opera-House, seen through a haze of gas and smoke, are but ghosts to remind us of his power, which combines a robust idealism and style with a peculiar modern refinement, and is greatly needed to combat the brutal realism of the day. Let us hope he will soon have some other great decorative works to show the public. An interesting work in this same gallery is by Albert Maignan, a young man who is rapidly winning his way to the front as a painter of mediæval scenes and episodes. He has not yet risen into the higher atmosphere of historical painting, for thus far, — as in this, *The Last Moments of Theodober*, — the picturesque has been the real motive of his work. There is much sentiment in his painting, and his rich and varied palette will go far to make up for the want of an early art-training. The most remarkable work by any of the younger men is *Parlementaire aux Avant-postes*, by Detaille, the military painter, which is a great advance upon his former clever but rather dry painting. Here he has enveloped his landscape in a deliciously misty atmosphere, through which bursts a gleam of sunshine, striking with fine effect upon the soldiers of the foreground.

Doré, if only to make room in an *atelier*, which, it may be suggested, is always too full, exhibits in each club, both as painter and sculptor. What restless demon urges this clever man to waste his power in sketches! His patience has never yet sufficed to develop his subject beyond the stage of suggestion, and this is never more apparent than in his gigantic compositions. Passing over some ingenious little statuettes, I must give him credit for one of his landscapes, as being really a fine — and, strange to say, not unnatural — twilight effect. After the works above mentioned these galleries contain little of interest, and, albeit most of the signatures are those of professional artists, the average is weak and amateurish; notably there is a lack of even fairly good landscapes, and no marines worthy of the name. The few casts and statuettes scattered about the rooms call for no special notice.

R.

UNREST.¹ — I.

THE subject which we may, I think, profitably discuss is the tendency observable in contemporary architecture to bestow too much care on the accessories and too little on the general design. It may be thought that in this respect our architecture naturally and perhaps inevitably reflects the temper of the age — its fever and fret, its strange mental excitement and all-pervading disquiet. It is nevertheless competent for us to modify, if not to alter, the course of our art by persistent and united effort in avoiding unwholesome excesses in any given direction, and by cultivating the opposite virtue.

My contention is, first, that in too much of the work of the present day an altogether disproportionate amount of attention is given to mere "details," using the word in the sense in which a painter uses the word "finish." Secondly, that our buildings are, as a consequence, characterized by a fussiness and disquiet destructive of the nobler qualities of architecture. Thirdly, that the redundant and obtrusive details are mostly, though of course not necessarily, of a very impure type. Fourthly, the detail, even when excellent in itself, does not appeal to the ordinary mind, which is, nevertheless, amenable to other influences within the compass of our art — that whilst the kind of beauty attainable in the minuter portions of a building and its decorations, though, no doubt, a very desirable quality, is equally at the service of the sculptor, the painter, and others, the power and impressiveness of a fine architectural composition, and the qualities which distinguish it as *creative* from merely *imitative* art, are attributes all its own. Fifthly, that by relinquishing or by not developing to its utmost limit our hold over this source of effect, we deny ourselves our distinctive means, as architects, of appealing to the imagination.

To take an illustration, the copious and admirable illustrations which from week to week appear in the various professional journals will, I submit, bear out my view as to the undue attention given to details of every kind, to the exclusion of weightier considerations. By the aid of the press we are enabled, without quitting our study chair, to pass in review the contemporary architecture of almost the whole English-speaking race, and we cannot but be struck by the strong family likeness, in minor points, between many of the buildings so illustrated. Special forms of detail apparently become occasionally epidemic. The preceding Royal Academy exhibition has perhaps given marked prominence to some design of exceptional merit, and it is in due course popularized by one or other of the professional journals. So soon as its distinguishing characteristics have had time to sink into the architectural mind and germinate, we get quite a crop of designs repeating, more or less exactly, the admired original, but with this peculiarity: the admirers of our supposed design fasten only upon its accidents, as I may call them, — queer excrescences of all sorts, funny little pediments and panels, dodgy chimney-stacks and caps, curious forms of windows and their glazing, of metal-work, barge-boards, balusters — attenuated or gouty as the mode may be — great sunflower finials, — "details," in short.

Designs from every corner of the kingdom are for a while troubled with these "thick-coming fancies," but with this lamentable result, that the power of the original which inspired all this emulation is not

¹ From a paper read at a meeting of the Architectural Association on April 23d by Mr. E. Ingress Bell.

attained. It was great in other ways, and in spite of all these oddities; and the really excellent qualities in it were not apprehended or were not reproducible by less able hands. That its smaller characteristics only or mainly have been fastened upon for reproduction shows the present bent of our minds. Our sketch and note books, the records of our holiday trips, all testify to the fact that we are too prone to seize upon the odds and ends, the titbits, of the buildings that strike our fancy, and the resulting facility we acquire in employing such in our own work leads to an extravagant and irrational use of them, and imparts to it that character of unrest which I am deprecating.

A noticeable instance of the feeling I am referring to is provided by the recently published autobiography of the late Sir Gilbert Scott. When one of the great Government competitions was imminent, he, with characteristic energy, prepared himself at once for the conflict by sedulously collecting and arranging such items of his design as cornices, parapets, windows and their dressings, and all the minor elements of his composition. Now this is most instructive, as showing us the side upon which a distinguished architect attacked a problem of unusual magnitude. To some results of his method I shall refer later on. At present I only note the fact as an illustration of a principle of design which appears to me radically faulty. As a consequence of our modern method, few of even the most considerable modern buildings do much to help the attractiveness of our large towns. We are in this respect far behind the architects of the sixteenth and seventeenth centuries.

The beauty of most of our buildings, such as they possess, is mainly of a microscopic order, and has to be searched for in petty details. We have of late years witnessed the removal of buildings of no great antiquity, nor of any special architectural excellence, yet possessing a telling picturesqueness which appealed to and was appreciated by all—cupolas, lanterns, and similar features which diversified the sky-line of this wilderness of bricks and mortar. The sites of these old buildings have been covered with others conspicuously deficient in the qualities and attractions of the old. The energies of their builders appear to have been given to surface decorations in low relief—pilasters, panels, carving, strings, and the rest, ineffective under our cloudy skies, and all soon to be reduced by soot and dust to one grimy obscurity. The sky-line is simply a monotonous row of chimneys, and we may think ourselves lucky if they are not unravelled out into a ragged fringe of crows and tallboys. The effect of the composition as a whole does not appear to have engaged a moment's thought. An example of a similar inability to grasp the whole of a problem is provided by the fashion which now obtains of painting the outsides of our London buildings in "art-colors," as somebody calls them, while the roofs and chimney-stacks are left unreformed and hideous. The public does not apparently feel the incongruity. In the face of such apathy it is not surprising that the *ensemble* of our public works receives less attention than it deserves, or that of many of the more prominent buildings of the metropolis we are constrained to say, as the immortal Mr. Mantalini said of the duchesses and dowagers whom he refused to marry, that "they have either positively no outline, or their outline is a dem'd outline."

The causes for this, as I submit, defective system of design are, I think, threefold, and for the first of them we must go back to the Gothic revival. It was discovered very early in the movement that, in order to secure a satisfactory resemblance to ancient work, accuracy of detail was of the first importance. Accordingly, for a time all the energy of the leaders of the revival was directed to a patient and unsparing investigation into the minutiae of mediæval buildings. The result was a thorough knowledge of every item in their composition, its chronology and development. This knowledge was duly catalogued, illustrated, and recorded in such text-books as Parker's Glossary, Paley's Mouldings, and others with which you are well acquainted. We had all their varieties at our fingers' ends, and were ready in their application. But, having with infinite labor completed our analysis, it was found that a corresponding synthesis was a quite different matter. The training we had gone through and the knowledge we had gained, though useful, nay, indispensable to us as antiquarians and archaeologists, proved rather a hindrance to us as artists, and we have found it as impossible to reproduce the spirit and excellence of the mediæval works from our scraps and details as it would be to reconstruct deal boards from sawdust.

As a second cause of our present manner, and connected with the Gothic movement, we may, I submit, adduce a certain purism which adopted and carried out too rigorously Pugin's celebrated dictum about ornamenting construction. We have been frightened by the utilitarian and his "obstinate questionings," and have tacitly admitted the propriety of his eternal query—What is its use? In endeavoring to find a sufficient *raison d'être* for every element of effect in our designs, we have been led one by one to abandon them almost all. It is curious to see how furtively (except in the case of a church) an architect introduces a tower into his designs. He does occasionally summon the courage to propose such a feature, and even domes have been built (upon paper). But such plights generally succumb before the old question, *cui bono*? The tower is sometimes allowed on the plea of a clock and eight bells. A clock is, however, notoriously difficult of treatment architecturally; and, moreover, in these days, when every one carries a watch, is not needed. The bells are rarely hung, and would be still more rarely rung. The last defence is that it is a place for records. A most weak reason, as it

seems to me, for the thick walls leave but little interval floor-space, even in a large tower, and the piling up of records, tier upon tier, cannot be a safe or economical disposition of them. It is [not] to be supposed that a peal of bells was designed for each of the three towers of our cathedrals. The plain reason is, that for artistic purposes, towers, domes, cupolas, and the like are necessary. Like the lilies of the field, their use is beauty; but we have not had the courage to avow the fact, and to defend their introduction on artistic grounds.

We have, consequently, in our despair, turned to surface decoration, and what Sir C. Wren called "Crinkum-crankum work," as the only field in which our ingenuity could expatiate. I come now to the third, and perhaps most potent, cause of the system which I have ventured to deprecate,—to the teaching and influence of a very remarkable man. There is no one who feels a more unfeigned admiration for Mr. Ruskin's genius than myself, and if I venture to controvert any of his dicta on matters pertaining to our art, it is with reluctance, and not, I hope, without a becoming diffidence. The fact that it is impossible nowadays to treat upon art in any of its manifestations without some reference, direct or implied, to Mr. Ruskin and his work, shows conclusively how largely the current of art-life has been influenced by him, and is in itself a tribute to his commanding ability. Still I cannot help feeling in the publication of his views upon architecture he unwittingly dealt a blow at architectural progress, from the effect of which we have not yet recovered. I need not explain at large to the present company the distinctive portions of his teaching to which I allude. Almost any view on the subject under consideration would, I am aware, find some countenance from isolated passages in his works. But about the general drift of his teaching there cannot, I think, be any room for doubt. He is, above all, the apostle of small things—"details," in short; and his views may, I submit, be not unfairly summarized in the following extract, in which he described his growth in art-knowledge, and his maturer convictions respecting the art of architecture: "The only admiration" (he says) "worth having attaches itself *wholly*" (the italics are his) "to the meaning of the sculpture and color on the building, very regardless of general form and size, but intensely observant of the statuary and floral mouldings, mosaics, and other decorations. Little by little it gradually became manifest to me that the sculpture and the painting were, in fact, *the all in all of the thing to be done*—that these which I had been long in the careless habit of thinking *subordinate* to the architecture, were, in fact, the *entire masters of the architecture*, and that the architect who was not a sculptor or a painter was nothing better than a frame-maker on a large scale." It is clear from this typical passage that the new departure which he inaugurated was an excursion in quest of newer varieties and greater excellence of detail, sculpture, floral mouldings, and the rest. He not only deprecates the ascription of any artistic merit to what we may call architecture proper, but he dubs it contemptuously, "frame-making on a large scale."

AN OIL-BURNING CREMATION FURNACE.

WHEELING, W. VA.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

Sir,—In the fall of 1876, during the excitement preceding the incineration of Baron De Palm, in the cremation furnace of Dr. Le Moyne, situated in the town of Washington, Penn., thirty miles distant from here, I began a series of experiments with a view of demonstrating that a human body could be reduced to ashes in considerably less time, and in a simpler and less repulsive manner, than the time required by the Le Moyne furnace, and the mode of incineration there to be practised. The result of my experiments was published throughout this country and Europe, prior to the De Palm incineration, and caused many persons interested in the subject of cremation to write me for a detailed description of the furnace used, and in some cases to request permission to cremate their deceased friends.

As the subject is now becoming more popular every day, and crematories are projected in different cities, and as these communications are getting to be quite a task to answer, I now forward to you for publication the drawings made at that time, in order that those who design erecting a building of this class can see what progress I had made in the art of cremation.

The furnace used in experimenting was an ordinary "oil furnace," known to glass-makers as a "glory-hole," similar in shape and appearance to a bee-hive: it was about six feet in diameter. The oil used was a distillation of petroleum, known as "fuel oil" and in common use in glass-houses to heat the "warming-in furnaces." This was run into a metal dish, called a "shoe," under the combustion-chamber with a quarter-inch pipe, and there ignited. The bodies were put into rude clay retorts made specially for the work and placed on suitable supports in the body of the furnace.

The exact degree of heat we obtained, I am sorry to say could not be ascertained, since the construction of the furnace made it impracticable to note it; but at one time the furnace was so hot, that the metal bars used in adjusting the retorts melted down like lead, showing that we had a temperature approaching 2,900 Fahrenheit. Without entering upon the result of each successive trial, I will say that calculations based on these experiments established the conclusions that a body weighing one hundred and fifty pounds could be reduced in from one to two hours time, in a properly constructed furnace, or four hours from the time the fire was started.

At the cremation of Baren De Palm in Dr. Le Moyne's furnace, it required thirty hours time to get the furnace sufficiently hot, consuming over forty bushels of coke; the body weighed ninety-three pounds, and was three hours in being reduced. It was without intestines or brains, as it had been embalmed some six months before, and of course was not as difficult to reduce, as one who had just died, even if of the same weight.

The accompanying drawings (see Illustrations) illustrate my ideas of a cremation furnace and crematory as deduced from the various experiments made at that time.

In Sheet 1, I have shown the furnace in detail. My idea was to give it a monumental or tomb-like appearance, and thus in a great measure rob it of one of its most repugnant features in that connection, — that of a fiery furnace; and with this end in view, I designed the furnace proper, which was to be built of fire-brick, to be encased with a covering of galvanized sheet-iron, which would admit of any contraction or expansion of the brickwork, and also could readily be removed for repairs, it being made in sections for that purpose. In Sheet 2 I show the furnace arranged at the intersection of the arms of a cruciform-shaped chapel, thus associating the process of cremation with the symbol of the Christian church.

In Sheet 1, the letter A designates the wall of the furnace, built of fire-clay brick. B is a casing or jacket of galvanized sheet-iron. C is a cylindrical retort, made of fire-clay or plumbago: this retort is constructed in two horizontal sections a^1 ; the lower section is made solid, and rests at each end on the walls of the combustion-chamber D, and is supported in the middle of its length by a cross-piece, E, also of burnt clay. The upper section of the retort rests on the lower section, the edges being matched to receive each other, and is perforated with apertures, b^1 , to admit the flame and permit the gases from the body to enter the fire-chamber and there assimilate with the products of combustion and be entirely consumed. FF are doors supplied with peep-holes covered with plate-glass, so that the stoker or other persons can witness the incineration if they desire.

The inner door is made of fire-clay, the outer one of wrought-iron with the sheet-iron exterior casing riveted to it; g^1 are smoke-flues. $HH^1H^2H^3$ are air-flues at the top and bottom of the furnace, to supply the requisite amount of oxygen to the combustion-chamber, and are provided with registers, c , for the regulation of the inflow of air. K is a chamber in which the "oil-burner" is placed to heat the furnace. L is the "oil-burner," which is simply a cone-shaped spiral of one-inch gas-pipe containing a series of perforations through which the oil flows. This spiral burner is connected with a pipe extending under the floor from the furnace to the reservoir situated at some convenient point and fitted with a safety switch-off to prevent the flame from running back into the oil-tank. M, is a crib or cradle made of quarter-inch iron rods connected with longitudinal pieces of one and one-half by one-quarter-inch iron, in which the body is placed before putting it into the retort. This crib permits the attendant to slide the body endwise into the retort, when it is very hot, an operation that could not be performed with a body alone under such conditions, as the body would adhere to the hot sides of the retort before it could be fixed in position for successful cremation.

When the oil is ignited at the cone burner the flame passes up the throat, e , of the passage into the combustion-chamber, where the gases expand and ignite, creating an intense heat in a very short time, not obtainable by the use of coke or coal without previous firing during a considerably longer time.

A furnace of this kind can be "run hot" in two hours — so hot as to melt down the iron cradle, if such a degree of heat is desired. We have ample proof of the great heat obtainable from this oil fuel in our glass-furnaces which are heated in this way in this section of country where the oil is cheap, costing about one dollar and twenty-five cents a barrel; one barrel serving to supply the furnace six hours.

I at one time thought of having the bottom of the retort perforated and putting an ash-receiver underneath; but I anticipated trouble with the ashes which would drop through, as they would be liable to be drawn up the smoke-flues. The perforations in the top of the retort serve to admit the flame which attacks the gases forced from the body by the heat of the retort, before they can enter the combustion-chamber, thus lessening the liability of their passing unconsumed up the chimney.

If the body of the furnace and the retort is made quite heavy, they will retain heat much longer than if they are light, and will allow of shutting off the oil-supply at an earlier hour. The cold-air register can be used in cooling the furnace rapidly, due provision having been made for contraction in the construction of the furnace and retort.

Furnaces similar to this have been used in two medical colleges, substantially as here shown, with the exception of the top half of the retort; it not being desirable in their case to take special care of the ashes.

The Le Moyne furnace is intensely practical (it has often been compared to one of the puddling furnaces of our iron-mills), devoid of all religious sentiment, and repugnant in appearance. This I could not conceive necessary or excusable. While economy was an important factor in the final disposal of the dead, yet the times did not require, to my thinking, such parsimony as was foreshadowed by the venerable pioneer, and therefore I designed a furnace and crematory that would at least serve as the basis from which might be evolved at some future time a successful mode of cremation, both from a practical and æsthetic standpoint.

In conclusion, I would say that the invention has not been patented, and if any of the suggestions are valuable to any one, they are welcome to use them. In making this contribution to the history and science of cremation, I present the result of my experiments to those who are interested in this mode of disposing of the dead. While I am inclined to think the furnace here shown would be perfectly satisfactory for a thinly populated section of country, specially where oil is cheap, yet if called upon now to build a public furnace for this purpose, and the business would justify it, I would adopt a "hot-blast furnace" in which the fires would be kept constantly burning. The first cost of course would be greater, but the end would justify the increased expenditure.

I am most respectfully,

STANTON M. HOWARD.

STEAM-METERS.

BOSTON, May 20, 1880.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

Sir, — In our May 15 number of your journal I notice an inquiry for a steam meter.

There was a patent issued to Mr. M. W. Kidder, of Lincoln, Mass., October 7, 1878, for a meter to perform the function required. The principle of the invention, which is fully covered by the patent, is to measure the amount of steam used by the quantity of condensed steam caught in the meter, the weight of which is registered.

Any communication addressed to Mr. Kidder, as above, or to Wright & Brown, his patent-solicitors, would meet with response, I have no doubt. I understand that Mr. Kidder has some of the meters in successful operation.

Very truly,

GEO. W. PIERCE.

NOTES AND CLIPPINGS.

LACUSTRINE AND ROMAN REMAINS AT MILAN. — Remains of lake-dwellings have been discovered in a peat-bog near Milan, and in a street in Milan excavations for a house have brought to light what are believed to be the vestiges of the old Roman theatre.

TRAVELLING STONES. — Many persons have doubtless heard of the famous travelling stones of Australia. Similar curiosities have recently been found in Nevada, which are described as almost perfectly round, the majority of them as large as a walnut, and of an iron nature. When distributed about upon the floor, table, or other level surface, within two or three feet of each other, they immediately begin travelling towards a common centre, and there lie huddled like a lot of eggs in a nest. A single stone removed to a distance of three and a half feet, upon being released, at once started off with wonderful and somewhat comical celerity to join its fellows: taken away four or five feet it remains motionless. They are found in a region that is comparatively level, and is nothing but bare rock. Scattered over this barren region are little basins, from a few feet to a rod or two in diameter; and it is in the bottom of these that the rolling stones are found. They are from the size of a pea to five or six inches in diameter. The cause of these stones rolling together is doubtless to be found in the material of which they are composed, which appears to be lodestone or magnetic iron ore.

THE EADS' SHIP-RAILROAD. — The first section of a bill lately presented to the House Committee on the Inter-Oceanic Canal incorporates, in the usual phraseology, Mr. Eads and his associates as the Inter-Oceanic Transit Company. The second section empowers the company to acquire and secure from the persons or governments controlling the rights of way, territory, harbors, and other necessary things, such rights, privileges, and concessions as may be necessary. The third section provides that if the company shall begin the construction of the railway within two years from the passage of the act, and shall prosecute the work diligently to completion, similar rights shall not be granted by the United States to any other company, either for a ship-railway or canal across the Isthmus, for fifty years. The fourth section provides for detailing two ships of war, properly officered, manned, equipped and provisioned, to assist in making all necessary preliminary surveys. The fifth section appropriates \$100,000 for the expense of such surveys. The sixth section provides that when, in the presence of a board of engineers, appointed by the President, a vessel of not less than 4,000 tons displacement shall be safely and promptly transported across the Isthmus on such ship-railway, the guaranty and obligations of the Government shall at once attach. The seventh and remaining sections give the guaranty of the United States to the stockholders (the stock not to exceed \$50,000,000) for a dividend of six per cent for thirty years from the date of the transportation of such first vessel, authorizes the company, if its road shall exceed forty-five miles in length, to issue mortgage bonds to the amount of \$500,000 for every mile in excess, and provides for the repayment to the Government, by bonds and sinking fund, of such sums as may be paid by it under such guaranty of dividend.

ARCHITECTS' FEES. — The *Athenæum* mentions the comment of Lord Chief Justice Coleridge in his charge to the jury in the case of an engineer's suit for the regular commission of one and one-half per cent on certain architectural work (see *American Architect* for May 15, 1880), and expresses the hope that the decision will "tend to abrogate the present system of payment to architects and others, and substitute for it some rational and honorable mode." We confess that we are surprised to find a journal of the standing of the *Athenæum* allowing itself to indulge in so wholesale an insult as is implied in the word we have italicized.

A NEW Parisian street has been named after Viollet-le-Duc.

BUILDING INTELLIGENCE.

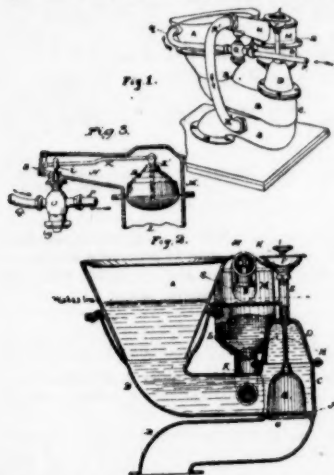
[Reported for The American Architect and Building News.]

[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.]

BUILDING PATENTS.

[Printed specifications of any patents here mentioned, together with full detail illustrations, may be obtained of the Commissioner of Patents, at Washington, for twenty-five cents.]

226,338. WATER-CLOSET. — George Milne and Wm. H. Gants, San Francisco, Cal. This closet depends for security against sewer-gas on the sealing water, kept in place by the valve G; the water standing in the bowl, A, the valve-chamber, M, and the tube, E, through which the rod of the pull-up handle works.



The valve, G, fits closely to its seat in the bottom of the upper arm, B, of the outlet-pipe by means of a rubber gasket. When this valve is raised to empty the bowl it rises into a chamber of similar shape to its own external form, in such a way that no solid matter can be lodged upon it. M is a chamber in which is a ball-float, as shown in Fig. 3, which is suspended from a lever, x, which has its fulcrum at the other end. Depending from this lever, between the fulcrum and the ball-float, and nearer the former than the latter, is a pin, i, which is connected with a ball-valve in the valve-chamber, o, of the supply-pipe, P; thus when the bowl is emptied by the raising of G, and the level of the water in the chamber, M, falls, the ball-float falls, and the pin, i, is so depressed that it moves the ball-valve in o, and a fresh supply of water is admitted to the bowl, ceasing to flow when by the rising of the ball-float the pressure of i is removed from the ball-valve. The overflow is effected through the pipe, R', shown in Fig. 1, which connects the chamber, M, with the lower arm of the outlet-pipe, below the valve, G.

227,014. AUTOMATIC SEWER-TRAP. — Matthew B. Cowden, Harrisburgh, Pa.

227,642. REVERSIBLE LATCH. — Milton C. Niles, Oak Park, Ill.

227,668. BRICK-MACHINE. — William B. Aitken, Philadelphia, Pa.

227,682. COMPOSITE ROOF. — S. L. Foster, and W. H. Benton, Philadelphia, Pa.

227,686. VISE. — Joseph Goodrich, Henry, Ill.

227,702. EAVES-TROUGH HANGER. — Ferdinand Otto, Springfield, Ill.

227,709. — MEANS FOR HEATING AND VENTILATING. — Calvin M. Woodward, St. Louis, Mo.

227,712. DOOR-SECURER. — Joel Armstrong, Marysville, O.

227,725. KEYHOLE GUARD. — Josiah H. Browne, Salem, Mass.

227,758. MACHINE FOR CUTTING STONE. — Samuel B. Frank, Nashville, Tenn.

227,765. WRENCH. — L. and A. S. Gray, Middletown Springs, Vt.

227,768. SCHOOL-HOUSE STOVE. — John Grossius, Cincinnati, O.

227,768. PIPE-WRENCH. — Griffith W. Griffiths, Tecumseh, Mich.

227,773. COMBINATION TOOL. — Dominikus Hartmann, Mansfield, O.

227,796. AIR-COOLING APPARATUS. — Oscar Kropff, Nordhausen, A. H., Germany.

227,799. ELEVATOR SAFETY-STOP. — Frank Laufkotter, Collinsville, Ill.

227,815. SAW. — Eli Morris, New Haven, Conn.

227,830. HYDRAULIC PIPE. — Daniel G. Phipps, New Haven, Conn.

227,866. ELEVATOR. — Alcibiades J. Whittier, Chelsea, and R. S. Whittier, Hyde Park, Mass.

SUMMARY OF THE WEEK.

Baltimore.

BUILDING PERMITS. — The following building permits have been issued since our last report:
A. A. Reinhardt, 16 three-st'y brick buildings,

Bolton St., between Mosher and McMechen, each 19' 3" x 60'.

William Dryden, three-st'y brick dwell., Hillen St., near Gay.

Mrs. M. A. Dale, three-st'y brick dwell., Gilmore St., between Edmonson and Harlem Aves., 18' x 60'.

James Bates, 2 three-st'y brick buildings, Lombard St., near Dallas St.

A. Hoen, six-story brick and stone warehouse cor. Holliday and Lexington Sts., running back to North St.

E. J. Mullen, 8 three-st'y brick dwells., cor. Carey and Mosher Sts.

Samuel Black, 6 three-st'y brick buildings, on Harlem Ave., near Stricker St.

R. W. Cabor, six-st'y brick and stone warehouse, on German St., near Charles.

R. W. Cabor, six-st'y brick and stone-warehouse, Charles St., near German St.

CHAMBER OF COMMERCE BUILDING. — The new building is to have a frontage of 82 feet on Second St., and 187 feet on Holliday St., and 187 feet on Post Office Ave., the first three stories will be used for offices, of which there will be 60, and the fourth floor will be used entirely for the exchange-room, which will be 76'6" x 180'. The building will cost \$225,000 or \$250,000, and the lot has been purchased for \$200,000. Messrs. John R. Niernsee & Son are the architects.

DWELLING. — Mr. Robert Hodges is about to build a new dwelling on St. Paul St., near Chase, to be 21 feet front by 80 feet deep, three stories high, and Mansard roof, and English basement. It will have white marble front, with buff terra-cotta finish. Cost, \$15,000. Mr. Chas. L. Carson is the architect.

PRINTING-HOUSE. — Messrs. A. Hoen & Co., lithographers, have purchased a lot of ground, 48' x 188', on Lexington St., extending from North to Holliday Sts. The firm proposes to build on the lot a six-story building to be used for their lithographing establishment.

SEMINARY. — Mr. E. F. Baldwin is preparing drawings for an addition to St. Mary's Seminary, on No. Paca St., consisting of the north wing, the south and centre wings, which were built three years ago, with the new wing will make a building 256 feet front, and five stories high. It is to be of brick and stone.

Brooklyn.

ALTERATIONS. — Court St., cor. Joralemon St., front alterations on Joralemon St.; cost, \$2,500; owner, D. A. Robbins estate; builders, Long & Barnes.

Hicks St., No. 122, cor. Clark, one-st'y brick extension, 17' x 19'; cost, \$2,200; owner, Estate R. T. Hicks; architect, E. H. Burnett; builders, J. W. Campbell and E. H. Burnett.

BUILDING PERMITS. — Greene Ave., 2 three-st'y brown stone dwells., 18' x 45'; owner, J. Doherty, No. 598 Quincy St.

St. Mark's Ave., Nos. 34-42, 6 three-st'y brown stone dwells., 16' 8" x 82'; cost each \$3,750; owner, G. M. Chapman, Rahway, N. J.; builder, P. J. Cootey.

Vanderbilt Ave., 3 three-st'y brown stone dwells., 17' x 45'; owner, Mrs. M. L. Brundage; architect, G. L. Morse; builder, P. J. Carlin.

Rutledge St., 4 two-st'y brown stone dwells., 19' x 40' x 45'; owner and builder, Richard Healey, 95 Lynch St.; architect, Isaac D. Reynolds.

Rutledge St., cor. Lee Ave., 1 three-st'y brown stone store and dwell., 21' x 60'; owner and builder, Richard Healey, 95 Lynch St.; architect, Isaac D. Reynolds.

Oxford St., 1 four-st'y brown stone dwell., 23' x 50' 8"; cost, \$11,000; owner, Charles O. Wolcott, 5 St. Felix Street; architect, G. L. Morse.

First Pl., No. 118, 1 three-st'y brown stone dwell., 25' x 50'; owner, Catharine E. Cleveland; architects, Parfitt Bros.; builders, M. J. Reynolds and Hartt & Boyd.

Vanderbilt Ave., 3 three-st'y brown stone dwells., 18' x 45'; owner, A. Purdy; builder, L. W. Seaman, Jr.

Prospect Ave., Nos. 208 and 210, 2 two-st'y brick dwells., 18' 9" and 18' x 38'; cost, \$2,200 each; owner, Thomas Pittblado, 213 Seventeenth St.

North Eleventh St., No. 58, two-st'y frame factory, 92' x 40'; owners and builders, Jordan Iron & Chemical Co.; architect, H. W. Pedler.

South Ninth St., 1 three-st'y brown stone tenement, 25' x 55' 10"; cost, \$9,000; owner, John Brown, on premises; architect, C. C. Buck; builders, S. J. Burrows and S. L. Hough.

Tiffany Pl., 1 five-st'y brick factory, 65' and 64' x 97' 5"; cost, \$17,000; owner, Robert S. Hobbs, Orange, N. J.; architect, Jno. Mumford, builders, J. H. Stevenson and B. Gallagher.

Raymond St., 10 two-st'y brick buildings on Raymond St., 14 two-st'y brick dwells. on Tillary St., 10 two-st'y brick dwells. on Sycamore St., being thirty-four houses in all; total cost, \$56,000; owners, Jackson S. Schultz, et al., New York; architect, R. Maynicke; builders, F. J. Kelly and Morris & Selover.

Boston.

BUILDING PERMITS. — Brick. — Marlborough St., for E. & A. S. Sever, 1 dwell., 20' x 45'; B. F. Dewing, builder.

Rays St. cor. Lamartine St., 1 button-factory, 50' x 160'; Richardson & Young, Fiedler, Moeldner & Co., owners.

2105 Washington St., for May & Gardner, 1 store, 45' x 57'; Burnham & Demott, builders.

Commercial St., cor. Foster St., for M. E. Parks, 1 tenement-house, 24' x 54'; G. H. Young, architect.

Wood, — 1 St., South Boston, for James E. Bowe, 1 dwell., 22' x 30'; three stories.

21 Bainbridge St., for S. Whelan, 1 dwell., 22' x 33'; R. Scott, builder.

Short St., Ward 23, 1 soap-factory, 25' x 30'; W. H. Priesing, builder; F. Karcher, owner.

Everett St., Ward 2, for A. Killop, 1 dwell., 20' x 32'; A. Campbell, builder.

Winship St., for J. Galligan, 1 shop, 24' x 36'.

Blue Hill Ave., for J. C. E. Goward, 1 dwell., 21' x 34'; C. Tilley, builder.

Blue Hill Ave., cor. Columbia St., 1 restaurant, 25' x 60'.

East Sixth St., South Boston, for O. F. Scanman, 1 restaurant, 45' x 48'; W. M. Henderson, builder.

Chicago.

CHURCH. — The corner-stone of a large and costly Swedish Lutheran church, at the corner of May and Huron Sts., was laid May 23, by the Rev. Hurm Carlson.

GRAIN ELEVATOR. — Messrs. Munger & Wheeler are building a grain elevator for the Chicago & Northwestern Railroad, which will have a capacity of 1,500,000 bushels.

Cincinnati.

Mr. Jas. W. McLaughlin, architect, has the following work in his office: —

A dwelling house for Mr. M. A. Spencer, on Seventh St., opposite Smith St., 30 feet front, stone front, 12 rooms, \$8,000.

An office-building for the Howard Oil Company at Houston, Texas; brick, cost, \$5,000.

A. F. Bosche, Esq., frame dwelling, Avondale, cost, \$7,000.

Milwaukee.

The following building permits have been issued since the last report: —

Myer Friend, brick dwell.; cost, \$11,000.

J. B. Martin estate, brick store; cost, \$15,000.

F. J. Bauer, brick malt house; cost, \$4,000.

Brand & Co., brick warehouse; cost, \$3,000.

G. Roppert, brick store; cost, \$2,000.

Street Railway Co., brick barn; cost, \$10,000.

John Lipps, brick store; cost, \$20,000.

Conrad Bach, brick store; cost, \$7,000.

Christ. Templin, brick store; cost, \$7,000.

Christ. Schunehnecht, brick dwell.; cost, \$4,000.

N. Newschwalter, 2 frame dwells.; cost, \$9,000.

Walter Nicholson, frame dwell.; cost, \$1,000.

D. Wait, frame dwell.; cost, \$2,000.

Albert Cleary, frame dwell.; cost, \$1,200.

Peter Kneisler, frame dwell.; cost, \$1,200.

Peter Smith, frame dwell.; cost, \$2,200.

Wm. Casper, addition to frame dwell.; cost, \$2,300.

Mrs. Clark, addition to frame dwell.; cost, \$2,000.

New York.

ALTERATIONS. — Madison Ave., No. 89, a fifth story to be added; cost, \$4,500; owner, Dr. Emmaet; architect, Thomas R. Jackson.

West Forty-Fifth St., No. 40, a fourth story to be added; cost, \$2,500; owner, Mrs. Sarah F. Schmidt; architect, Charles J. Berg; mason, M. Reid; carpenters, Steele & Costigan.

Henry St., No. 263, to be raised to four stories, also a four-st'y brick extension, 24' x 18'; cost, \$3,000; owner, George Graham; architect, G. Insole.

East Thirty-Ninth St., No. 119, three-st'y brick extension on rear, 7' x 15'; cost, \$2,500; owner, Col. R. M. Hoe; architect, J. C. Cady; builder, A. T. De Bay.

Lexington Ave., No. 161, cor. Thirtieth St., three-st'y brick extension, 22' x 37'; cost, \$3,500; owner, Thos. J. McCahill; architects, D. & J. Jardine.

Thirtieth St., No. 123, three-st'y brick extension, 25' x 36'; cost, \$2,000; owners, Swift & Co.; architect, S. McKimmin; builder, J. Noble.

First Ave., five-st'y brick extension on rear, 25' x 60'; cost, \$8,000; owner, Stevenson Towle; architect, A. Burgess; builder, Wm. Pettit.

Water St., Nos. 323, 325 and 327, internal alterations; cost, \$6,000; owner, Miss Ellen Collins; architect, H. R. Marshall; masons, J. and W. C. Spear; carpenter, Thomas Overington.

East Nineteenth St., No. 341, a fourth story to be added, four-st'y extension, 14' 6" x 25', and internal alterations; cost, \$5,500; owner, G. W. Folsom; architect, Julius Boeckell.

Sixth Ave., No. 808, one-st'y brick extension, 18' 9" x 25' to be built on rear, new store front in first story, and internal alterations; cost, \$2,600; owner, Capt. J. Grafton; architect, M. C. Merritt.

Sixth Ave., cor. Nineteenth St.; four-st'y brick extension, 51' x 103' x 122' 6" on rear; cost, \$70,000; owners, B. Altman & Co.; architects, D. & J. Jardine.

East Sixth St., No. 15, two-st'y brick extension, 17' x 34' on rear; cost, \$5,000; owner, Joseph Bell; architect, James E. Ware; builder, John Downey.

Bowery, Nos. 104 and 106, front-building to be altered internally, to be occupied as a theatre; cost, \$27,000; owner, M. Hermann; architect, Wm. Jose.

BUILDING PERMITS. — Eighty-Sixth St., 4 four-st'y brick (brown stone front) apartment houses, 30' x 68'; cost, each, \$12,000; owner, John Ledwick, 132 Nassau St.; architect, Charles Baxter.

One Hundred and Twenty-Second St., 5 three-st'y brick (brown stone front) dwells., 14' x 43'; cost, \$9,000 each; owner and builder, A. B. Birdsall, 108 East Twenty-Third St.; architect, J. H. Valentine.

Fifty-Third St., 4 four-st'y brick (brown stone front) dwells., two 22' x 65' each; two 25' x 63' 8" each; cost, \$28,000 each; owner and builder, R. W. Buckley, 163 East Fifty-Fourth St.

Pitt St., No. 136, three-st'y brick hotel, 25' x 52'; cost, \$8,000; owner, F. Becker, 138 Pitt St.; architect, A. H. Blankenstein.

West Forty-Second St., No. 420, five-st'y brick tenement and store, 25' x 72'; cost, \$15,000; owner, Daniel McDonald, 515 West Forty-First St.; architect, John M. Forster.

Eleventh Ave., cor. Twenty-First St., four-st'y brick factory, 49' 4" x 65'; cost, \$15,000; owner, John McClave, Twenty-Second St. and Eleventh Ave.; builder, Wm. B. Pettit.

One Hundred and Twenty-Eighth St., 3 three-st'y brick (brown stone front) dwells., each 19' 4" x 50'; cost, each \$10,000; owner and builder, F. A. Thurston, 62 East One Hundred and Thirty-Third St.; architect, Theo. Dieterlin.

Twenty-Third St., 2 brown stone front, five-st'y apartment houses, each 23' 6" x 100'; cost of each \$25,000; Edward Cunningham, builder and owner; Messrs. Thom & Wilson, architects.

West Thirty-Eighth St., No. 254, a five-st'y, brown-stone-front apartment house, 25' x 88'; estimated cost, \$18,000; Samuel McMillan, owner and builder; Messrs. Thom & Wilson, architects.

Eleventh Ave., cor. Twenty-First St., a brick four-

st'y factory, 49' x 65'; estimated cost, \$15,000; John McClave, owner; William B. Pettit, builder.
One Hundred and Twenty-Eighth St., 3 brown-stone front three-st'y dwell., each 19' x 50'; estimated cost of each \$10,000; F. A. Thurston, owner and builder; T. O. Distler, architect.
Hudson St., No. 71, a five-st'y brick store, 25' x 93' 2"; estimated cost, \$17,000; David Martin, owner; Amzi Hill, architect; John P. Suley, builder.
East Seventy-Eighth St., No. 353, a four-st'y brick stable and workshop, 25' x 102'; estimated cost, \$3,000; Edward Kilpatrick, owner and builder; D. & J. Jardine, architects.
One Hundred and Forty-Fourth St., 4 three-st'y frame dwell., each 12' 6" x 50'; estimated cost of each, \$900. John Mueller, owner; Wm. Graul, architect.
ASYLUM. — A deaf and dumb asylum is to be built at Sixty-Seventh St. and Lexington Ave., of brick and stone, 132' x 100' 8"; Mr. H. J. Fernbach, architect.
FACTORY. — A factory is to be built for Messrs. Christy, Sheppard & Garrett at No. 510 West Twenty-Third St. It will be of brick. Mr. P. K. Jackson is the architect.
HOSPITAL. — A pavilion for the German Hospital, Seventy-Sixth St. and Fourth Ave., 30' 6" x 18' is to be erected at a cost of \$8,000, from designs of Messrs. H. J. Schwarzmann & Co.

Philadelphia.

ALTERATIONS. — 3415 Frankford Ave., addition to factory, 27' x 36'; owner and builder, James Crook.
ADDITION. — 1549 Germantown Road, three-st'y addition to building, 12' x 24'; owner, George Mousley.
DYE HOUSE. — Ridge Ave., near Shurs Lane, one-st'y dye-house, 18' x 50'; owner, G. J. Littlewood.
FACTORIES. — Swanson and Parham Sts., rebuild factory, 25' x 34'; owner, Henry Stillwell.
Factory St., near Adams, one-st'y factory-building, 40' x 40'; owner, W. Banett.
HOTEL. — The Pennsylvania R. R. Co., has purchased the property on Market St., between Merrick and Fifteenth, running back 116 feet. This space will be occupied by the new Depot Hotel. Price, \$150,000.
HOUSES. — Morton St., cor. Johnson St., three-st'y dwell., 45' x 51'; builder, John Hirst.
Schem St., north of Poplar St., three-st'y dwell., 16' x 26'; owners, Lawson & Brenizer.
Fairhill St., south of Cumberland, 6 two-st'y dwell., 14' x 44'; builder, H. M. Housekeeper.
Fifth St., near Butler, 4 two-st'y dwell., 15' x 40'; owner, Henry Gill.
1214 Ellsworth St., two-st'y dwell., 16' x 27'; builder, A. Taylor.
Forty-ninth St., cor. Chestnut St., two-st'y dwell., 32' x 42'; builder, J. A. Sloan.
1312 Thompson St., three-st'y dwell., 23' x 42'; builder, Thomas Seening.
Sumac St., near Righter, 1 three-st'y dwell., 23' x 40'; builder, W. Goodfellow.
STORES. — 422 West Girard Ave., three-st'y store and dwell., 14' x 36'; builders, W. Dickinson & Bros.
Ridge Ave., opposite Queen St., three-st'y store and dwell., 20' x 52'; builder, Charles Bartle.
Messrs. Strawbridge & Clothier, the wholesale and retail dry goods merchants, cor. of Eighth and Market Sts., have under way an extensive improvement, 24' x 205'; cost, about \$100,000; architects and builders, Balderston & Hutton.
STOREHOUSE. — *Catharine St. Wharf*, one-st'y store-house, 30' x 100'; owners, Knickerbocker Ice Co.
RAILROAD OFFICES. — The Reading R. R. Co. have purchased the property directly in the rear of their present building, on Fourth St. and Willerigo Alley, and are demolishing the old buildings preparatory to building a large addition to their present quarters. Architect, Mr. Frank Furness.
REFINERY. — At Point Breeze, one-st'y refinery, 100' x 197'; owners, Philadelphia & Point Breeze Refinery.

St. Louis.

BUILDING PERMITS. — Forty-four permits have been issued since our last report, four of which are for frame structures of slight importance. Of the rest, those worth \$2,500 or over are as follows: —

Owner's Name.	Use.	Stories.	Rooms.	Cost.
A. McChesney,	Dwell.	3	10	\$4,500
Chas. Peck,	Dwell.	4	4	9,000
Geo. F. Dorris,	Store.	2	2	12,000
William Boobyshell,	Stable.	2	2	3,500
J. Vase,	Dwell.	3	16	3,800
W. L. Wickmire,	Church	2	2	7,000
City of St. Louis,	Police St'n.	2	2	9,000
A. Kuitage,	Dwell.	3	12	5,000

Sacramento, Cal.

The following buildings are in course of construction under Cook & Clark, architects, Sacramento City, Sacramento Co., California.
HOTEL. — Altering "Orleans Hotel" into large paint and oil salesrooms for Whittier, Fuller & Co.; cost, \$8,000.
Additions to Union Hotel, cor. K and Second Sts., to contain fifty-three rooms; cost, \$18,000.
HOUSES. — H St., between Eighth and Ninth Sts., two-st'y frame dwell.; cost, \$5,000; owner, Herman Steinmann; contractors, E. A. & J. S. Booyer.
I St., between Tenth and Eleventh Sts., two-st'y frame house; cost, \$2,000; owner, Geo. W. Lorenz; contractors, Pike & Seaman.
L St., between Fourteenth and Fifteenth Sts., frame house, brick foundation, all modern improvements; cost, \$4,000; owner, S. W. Butler; contractors, Pike & Seaman.
Front St., between V and W Sts., cottage residence for Thos. Hayne; cost, \$2,000; Neff & White, contractors.
Remodelling brick dwelling for Henry Hausche, on Fourth St., between M and N Sts.; cost, \$2,500; contractors, E. A. & J. S. Booyer.
O St., between Fifteenth and Sixteenth Sts.; frame house; cost, \$3,500; owner, P. S. Lawson; contractors, Miles & Bro.
G St., cor. Fifteenth, frame house; cost, \$3,000; contractor, Wm. H. Mead; owner, S. Wren.
Residence on Fourth St., between N and O Sts., for M. Levi; cost about \$2,500.

STORE. — Remodelling "Clunie Block," corner Eighth and K Sts., owner, Thomas J. Clunie; cost, \$15,000.
Store and residence on K St., between Front and Second Sts.; owner, Geo. Schroth; work doing by the day.

General Notes.

BEVERLY, MASS. — The new school-house at Dodge's Row is to be built by Wm. E. Perkins, of Centerville.
BYRN MAWR, PA. — The late Dr. Jos. W. Taylor, of Burlington, N. J., by his will left \$850,000 confided to trustees, for the purpose of building and endowing a college for the education of females, at Bryn Mawr, Pa. The trustees of this legacy have been duly incorporated under the name of "The Trustees of Bryn Mawr College." The construction of the buildings will now be steadily prosecuted. Francis T. King, of Baltimore, is the President; Addison Hutton, of Philadelphia, is the architect.
DORCHESTER, MASS. — A house for Gen. Hazard Stevens is now building on Mt. Bowdoin Ave., from designs of Mr. O. E. P. Newcomb, architect, of Boston. The building measures 40' x 60'; the first story is of brick, and the second of open-timbered work. S. T. Waters & E. E. Chapin, builders.
On Melville Ave., a double house for Chas. Bush and E. S. Farwell is approaching completion; J. F. Haynes, builder; O. E. P. Newcomb, architect.
DUMONT, N. Y. — S. B. Dumont, Esq., of this place, is making preparations to build a hotel, 70' x 60', two stories. F. D. Hyde, architect, Dubuque, Io., is preparing the plans.
EAST GREENWICH, R. I. — The Baptist Society is now contemplating the building of a new church in another location. Nothing has yet been definitely settled.
FALL RIVER, MASS. — The foundation for St. Joseph's Church, on North Main St., opposite the North Burial Ground, is nearly all in.
FOLSOM, CAL. — The last legislature appropriated \$40,000 for the completion of the branch prison at Folsom. Cook & Clark have the work under way. Most of the labor will be by prisoners.

Industrial.

AMHERST, MASS. — Workmen are clearing away the ruins of the Hills Company's factories, and the works are to be rebuilt at once. The main factory is to be four stories high, and will be built on two sides of a square, each wing to be 100 feet long. There are also to be three other buildings, two stories high, one 36' x 40'; one 30' x 36'; and the third 32' x 60', and 2 one-story buildings for bleacheries, each 30' x 50'.
BOSTON, MASS. — A factory, 160' x 50', two stories in height, is to be built on Lamarine St., near Boylston Station, for Fielder, Melchior & Co.
CHICAGO, ILL. — Thomas Gaunt, Yonkers, constructing engineer and architect of the buildings and machinery of the Chicago Steam Sugar Refining Company, has prepared plans and specifications for the new buildings of the company to be erected at Chicago. The sugar house building will be 330' x 150', thirteen stories high; filter house, 150' x 70', and 130' high; boiler house, 240' x 100', and 50' high; chimney, 250' high, with a flue of 16'.
GREENFIELD, MASS. — Newell Snow has begun on the foundation for a new brick factory, 100 feet long, on the site of the old Green River foundry works.
LYNN, MASS. — Samuel M. Bubier is building a new shoe factory, 80' x 20', and three stories high.
LOCK HAVEN, PA. — Armstrong & Dixon, of Philadelphia, are about to erect a large wood pulp mill at Lock Haven.
MILFORD, MASS. — Estabrook & Wires are building an addition to their factory, 22' x 40'.
NORTH LYME, CONN. — James Bingham has removed to Pleasant Valley, where he is building a new paper mill.
TACONY, PA. — Henry Diston & Sons are building a large rolling mill.
TAUNTON, MASS. — H. A. Williams & Co. have broken ground for their new factory near the Weir Junction depot. The main building will be 150' x 35', three stories, built of wood; the boiler and furnace house of brick, 30' x 35', one story.

Bids and Contracts.

ALBANY, N. Y. — The new Capital Commissioners have awarded the contract for gas fitting to Frederick Tudor & Co., of Boston, for \$7,940.
BALTIMORE, MD. — Messrs. S. H. and J. F. Adams have been awarded the contract for the new warehouse for the Trustees of Johns Hopkins University, on Sharp St., near Lombard, at \$90,000; Dixon & Carson are the architects.
CHICAGO, ILL. — The Chicago, Milwaukee & St. Paul Railroad has awarded the masonry contract on the new viaduct on Desplaines St., to S. Bryan.
DEDHAM, MASS. — The contract for the extension of the Norfolk county jail is awarded to Albert Carrier, of Newburyport, for \$17,800.
EASTHAMPTON, MASS. — The Bartlett Brothers, of Whately, have been awarded the contract to build the new library building for \$16,000.
NEWARK, O. — The contract for building the new Pan Handle Depot has been awarded to Levi Furgerson and Chas. Daugherty, for \$16,000.
PHILADELPHIA, PA. — The Phoenix Iron Company, of Trenton, N. J., are the successful bidders for the contracts to build two lighthouses on the Delaware River, near Philadelphia. They are to be of the fourth order, with iron cylinder towers eight feet in diameter, surmounted by watch-rooms and lanterns, with a focal plane ninety-eight feet nine inches above their base.
YOUNGSTOWN, O. — The contracts for the new store of E. M. McGillin & Co., which is to be three stories high, and to measure 80' x 200', have been awarded to S. Bridgeford, of Sharon, for the brick-work, and R. Weslow, of Cleveland, for the carpentry. Walter Blythe, of Cleveland, is the architect.
IRONDALE, ILL. — Mr. Patrick Conboy has been awarded the contract for building the Methodist Episcopal Church. It will cost \$3,500.
PITTSBURGH, PA. — The Connellsville Iron and Coke Company will build forty dwelling houses. B. W. Rankin, McKeesport, has the contract.
Ripley & Co. are to build a three-story building, to give additional stock room and storage facilities.

Public Buildings.

BOYSE CITY, IDAHO. — The House Committee on Public Buildings and Grounds recommends an appropriation of \$50,000 for a public building.
COLUMBUS, O. — The House Committee on Public Buildings and Grounds, has agreed to make favorable reports upon the bill for the erection of a public building, cost not exceeding \$200,000.
COUNCIL BLUFFS, IO. — \$100,000 for a public building are recommended by the House Committee on Public Buildings and Grounds.
FORT WAYNE, O. — The House Committee on Public Buildings and Grounds has agreed to make favorable reports upon the bill for the erection of a public building; cost not to exceed \$100,000.
MILTON, PA. — A bill to appropriate \$25,000 to build a public building for this unfortunate town passed the Senate, May 15.
NEW ALBANY, IND. — The House Committee on Public Buildings and Grounds recommends an appropriation of \$75,000 for a public building.
THERE are some fifty bills on the calendar authorizing the construction of buildings whose cost would aggregate almost \$7,000,000.

Publishers' Department.

The American Architect and Building News.

PUBLISHED EVERY SATURDAY BY

JAMES R. OSGOOD & COMPANY,
BOSTON, MASS.

An Illustrated Journal of Constructive and Decorative Art devoted to the Interests of Architects, Builders, Decorators, etc.

15 cents per copy; \$7.50 per year; \$6.00 in advance.

Payments should be made directly to the Publishers, either by draft or by post-office order.

JAMES R. OSGOOD & COMPANY, Publishers,
BOSTON, MASS.

New Advertisements.

OPEN STOVE VENTILATING CO. (New York), Page vii.
COX & SONS (London, England), Art Workers. vii.
S. H. TOWNSEND, Architect (Wanted). Page 242.
J. D. WEST & CO. (New York), Lightning Rods. Page vii.
E. & F. N. SPON (New York), Books. Page 230.
J. J. READ (Boston), Harness Bracket. Page ix.
ARNOUX & HOCKHAUSEN (New York), Electric Lights. Page vii.
A. WILLIAMS & CO. (Boston), Books. Page vi.
WELCH & LAWSON (New York), Automatic Gas Pumping Engine. Page ix.
W. H. STEWART & CO. (New York), Roofing. Page ix.
J. ARTHUR MURPHY & CO. (New York), List of Trades and Professions. Page vii.

Professional Books.

JUST PUBLISHED.

With over three hundred illustrations.

HOUSE ARCHITECTURE.

By J. J. STEVENSON,

Fellow of the Royal Institute of British Architects.

2 vols. royal 8vo. Price, \$12.00.

W. L. MACAULAY, 23 Dey Street, New York.

N. R. CAMPBELL & CO.

17 Franklin St., Boston,

Make a specialty of Mechanical and Scientific Books.

Catalogues mailed free on application.

Scientific Books.

A Descriptive Catalogue of Practical Books for Architects, Engineers, and Contractors. sent free on application.

E. & F. N. SPON, 446 Broome Street, New York.

WANTED.

TO ARCHITECTS.

A YOUNG architect, age 25, who has been in practice in Canada for the past five years and is well up in all the details of the profession, is desirous of corresponding with some architect with an established practice, with a view to partnership.
Address, Architect, P. O. Box 2646, Toronto, Ont.

A PERMANENT position is desired by a Draughtsman of ability, with references.
Address: F. W. SLADE, Somerville, Mass.

HOPEWELL QUARRIES.

Curryville, Albert County, N. B.

The New Brunswick Freestone Company is prepared to deliver by Railroad or Water, as ordered, Freestone of Best Quality, and of most desirable color, either in clear Olive or Blue.

Special facilities for shipping to any part of the Canadas.

J. H. HAYDEN, Resident Agent. SAMUEL SNOW, Treas., 17 Pemberton Square, Boston, Mass.