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CONTENTS.

SUMMARY:—

The Death of Mr. E. M. Barry, R. A.—His Position and Works.—The Philadelphia Underwriters on the Fire Question.—The Responsibilities of Insurers.—Hydrants in House-Tops.—Mr. Atkinson's Project.—The Kings County Penitentiary Fire.—Captain Eads's Transit Company.—Another Prehistoric Excavation	41
GOTTFRIED SEMPER. II.	43
ELEVATOR SHAFTS. I.	44
ROMANESQUE ARCHITECTURE. III.	45
THE ILLUSTRATIONS:—	
Stone Hall, Wellesley, Mass.—Details of Stone Hall.—Interior of a Dining-Room	46
THE RESTORATION OF ST. MARK'S	46
CORRESPONDENCE:—	
Letter from New York	47
TESTING THE SUSPENDERS OF THE BROOKLYN BRIDGE	48
THE DELAWARE SHIP CANAL	48
COMMUNICATIONS:—	
Cast-Iron Furnace Construction.—The "Queen Anne" Style.—The Duomo at Florence.—Another Competition	49
NOTES AND CLIPPINGS	50

WE learn by telegraph the bare fact, without farther explanation, of the death of Mr. E. M. Barry, R. A., late President of the Royal Institute of British Architects, and Professor of Architecture at the Royal Academy. He was born in 1830. He was a pupil of King's College School, in London, and first studied architecture under the late Professor Donaldson. From Professor Donaldson's office he went to that of Mr. T. H. Wyatt, and later to that of his own father, Sir Charles Barry, whom, at his death, in 1860, he succeeded as architect to the New Houses of Parliament, then not quite finished. Since that time his name has been conspicuous among English architects. His first important work, we believe, was the Covent Garden Theatre, which he built in 1857. He was architect also of the Opera House at Malta, of St. Saviour's Church at Haverstock Hill, of many schools, hotels, and other buildings, public and private, among them the Charing-Cross Hotel, well known to travellers, and the great hotels at Cannon St. He completed the Halifax Town-Hall, left unfinished by his father. In 1867 he won in a competition of designs for the extension of the National Gallery, and was at the same time one of the successful two in the great competition for the New Law Courts, Mr. Barry's design having been selected on account of the excellence of his plan, and Mr. Street being associated with him for the sake of his architecture; or, as Sir Gilbert Scott astutely puts it in his Memoirs, "the judges . . . desired to give their verdict in favor of Mr. Barry, but as his architecture was approved by no one, they conceived the idea of linking on to him some other architect, in whose architectural powers they had more confidence, and they pitched upon Mr. Street, whose arrangements no one had ever spoken in favor of." This decision of the judges was set aside, however, and in the end the government appointed Mr. Barry as architect of the Gallery and Mr. Street to the Law Courts. Later, when it was decided to alter Burlington House for the use of the Royal Academy, Mr. Barry was appointed to that work also.

MR. BARRY was, like his father, a consistent advocate of the classic styles, to which he naturally first turned under Professor Donaldson's instruction; and when he turned aside to Gothic design he did it only in obedience to outside pressure, as his father had done in the Houses of Parliament. At the time of the Law Courts competition Gothic was so universally in favor in England that it was a foregone conclusion, and Barry, like the rest, submitted a Gothic design, though it is our impression that he was one of the two or three who added an alternative in Renaissance. His want of aptitude in what was probably to him a masquerade may have been reason enough for his fortune in this competition. Mr. Barry's success was perhaps due as much to his personal character and opportunities as to special ability as an architect. He was thoroughly educated to his work, and well trained in the collateral knowledge that gives quality to an architect's work. He appears also to have been a man of sound sense and tact, of catholic feeling, popular in his profession as well as outside of it, always ready to uphold its claims and to represent it with credit before the public. His lectures before

the students of the Royal Academy, as professor of architecture, are scholarly, practical, and full of a right professional spirit. He preceded Mr. Whichcord, now in the chair, as president of the R. I. B. A., and his administration brought in several changes that seemed to rouse new life and activity in the Institute. He was quick to champion the rights of his profession, and fought manfully in defense of his own when the late Mr. Ayrton, once commissioner of Public Works, demanded the surrender to the Government of the plans of the Houses of Parliament; although the arbitrary temper and the authority of the commissioner prevailed in the end.

THERE is a curious confirmation of some things we said the other day about insurers in the report, just published, of a committee of the underwriters of Philadelphia, which had been appointed to consider the shortcomings of the fire department of their city. After touching very briefly on the chief causes of inefficiency,—inadequate distribution of water, an untrustworthy fire-alarm, insufficient extinguishing apparatus, and politics in the department,—the report quits the subject abruptly, saying that "the committee fail to see how the underwriters of this city, as such, have any duties to perform in the direction of improving the protection against fire." As citizens, they may deplore the inefficiency of their fire department, but as underwriters "their business is to pay for fires, not to prevent them." The only thing they have done in favor of protection is to establish fire patrols, and it is doubtful, says the report, if this has been profitable to the companies, inasmuch as it has cost them more in reduction of premiums than it has saved in losses, since a great deal of the property saved by it has been property not covered by insurance, and saved therefore, not to the insurers, but to the community. Finally, the report declares that when the underwriters shall have advanced their rates to the point which the insufficient protection of the city requires "they will have done their whole duty to their stockholders and policyholders." The committee therefore recommends no action concerning protection.

HERE is opportunity for a casuist to ask whether the question of duty is to be so easily disposed of. On the assumptions of the report its conclusions are perfectly logical; but we may ask if an insurance company has no duties except to its holders of stock and policies, or if an institution which owes its existence to a state charter has not some duties to the public. If the underwriters could be absolutely neutral in the matter of danger from fires it would be another thing; but their natural influence is to increase the common danger by taking away from individuals the chief motives for precaution. In fact, we may say that it is one of their main functions to encourage people to endanger their neighbors by carelessness. It is impossible for them to help affecting the security of the public in this respect, and so, whether there is any legal way of holding them to it or not, it is morally their duty to see that their influence on the whole is not in favor of peril; that is, that their natural influence in one direction is offset by a positive effort in the other. Corporations are the subjects of the state as much as individuals, share its protection, and are held to contribute to its expenses in the same way; and are alike morally responsible for their influence in the community. It is not the thing, therefore, for underwriters to quietly waive all concern for the public safety in a matter which is directly connected with their business and affected by their own conduct; or to argue that they are relieved from responsibility, which is duty, when they are free from legal or business obligation. There is this difference, moreover, between the corporation and the individual: that the corporation, unlike the other, is the creature of the state, which may therefore the more reasonably assume to control its action for the sake of its influence, if there appears a way to do it. If then the underwriters, the observed tendency of their business being to aggravate a great public danger, should assume to waive responsibility for it, and refuse to exert the counteracting power which their business puts into their hands, the state would be justified in regarding them as dangerous to the public, like lottery agents, usurers, keepers of gambling houses, and others who make their profit out of the necessities or inordinate desires of other men, and who, though a convenient refuge for the individual at a crisis, may be a more than compensating injury

to the community. The recklessness of life-insurance companies has already provoked state interference, and if fire-underwriters should elect to cast off their responsibilities the same interference might become necessary in their case.

THE discussions before the Society of Arts have resulted in the proposal by Mr. Atkinson of a system of protection against fire for blocks of buildings in cities, which is developed out of the experiences of mill-owners. There is apt to be great difficulty in delivering water on the roofs and upper floors of high buildings, from the engines in the streets, with volume and force enough to be effective in fires, and this even though the pressure in the mains may be enough itself to carry the water to the level where it is wanted. It is also difficult and dangerous to carry lines of hose filled with water up four or five stories, especially on the outside of buildings. He proposes then that each block in the dense business quarters of a city should be provided with outside stand-pipes at three or four points, rising to the tops of the buildings. These stand-pipes should connect with the high water service of the city, if there is one, should have hydrants at the tops only, and should lead to a system of horizontal pipes distributed over the roofs, with gates and hydrants at each party-wall. When the pressure of the water is insufficient the stand-pipes should connect with three or four steam-pumps in the buildings. The whole should be under control of a corps of engineers and watchmen, and ladders reaching down from the roofs to the second story should be fixed at convenient points on the walls of the buildings for access. He estimates that such a service of pipes (without the pumps) could be provided for about sixteen hundred dollars per acre of buildings. The fifty acres which were burned over by the Boston fire, with a loss of about eighty millions of dollars, would at this rate be provided for at a cost of eighty thousand dollars, which he estimates to be about one fifth of the annual premiums for insurance, and a seriously destructive fire would then, he thinks, be almost impossible.

THERE would be doubtless considerable advantages in a supply of water laid on in this way, and in some emergencies it might prove of very great importance. It is, however, hardly of a kind to take the place of any other precautions, and must therefore be regarded as so much added expense. Whether owners could be induced to adopt it would depend on what reduction underwriters were willing to make in premiums to those who used it; but this, as underwriters go, could probably not be discovered till the invention had been tested by actual use, which would be likely to develop conditions that do not suggest themselves at first. One or two obvious difficulties do suggest themselves. One is the difficulty of keeping so extensive an apparatus, very rarely used, in working order. The owners could not be trusted to do this, for, as we have argued in speaking of other analogous cases, it is a rule that appliances which are intended only for rare emergencies are found out of order when these emergencies occur. It could be effectually cared for only by some one whose special business it was, — the contriver of it suggests the underwriters' inspectors, — and it would be open to many injuries from exposure and weather. It is a question, too, how far it could be depended on in very cold weather; and, as we know, fires have an awkward trick of breaking out in just such weather. It is not sure that water could be made to go very far into an iron pipe chilled down to the zero point, as such pipes would often be, without being caught by the frost. Still, the experiment is one that we may be very glad to have tried, when any one, owner or underwriter, is ready to risk the expense of it.

THE fire in the Kings County (New York) Penitentiary, a few days ago, was of an alarming and suggestive kind. The workshop which took fire was a brick building with wooden floors, two hundred and fifty feet long, containing three stories and an attic. In this building were at work five hundred convicts, male and female, and more than three hundred workmen from outside. A fire was first discovered under the main staircase, where it was luckily put out, without raising an alarm. Immediately after, another fire was discovered in the attic; only the energetic action of the officers saved a panic and a stampede. Promptness and good discipline succeeded in getting the prisoners safely out of the building and back to their cells, without any escape, so far as is reported. This is very creditable to the officers of the prison; but it is not so creditable to its system that near a thousand convicts and other workpeople

should have been crowded together at work in such a building. It seems little less than a miracle that the prisoners and workmen should have been so extricated and controlled without disorder; and it would not be wise to count on the repetition of such a miracle, while the repetition of the fire would not be miraculous, if it was the work of incendiaries, which is inferred from the fact that it broke out simultaneously in two places far apart. The collection of all the women in the third story very nearly led to hopeless confusion; and doubtless would have done so if the fire had not been most opportunely put out before it got headway under the staircase, to which all crowded at the first alarm. If a panic had once fairly set in, and the convicts got beyond control, — as they would have been likely to if they had been a little less quickly handled, or if their exit had been obstructed, — frightful disorders would have followed, of which the least might have been a general jail-delivery. The movement against convict labor has not been urged on very reasonable grounds; but, if the labor is managed in this way, the less of it the better. The authorities of Kings County have food for other reflections than those of self-congratulation. They are said to be considering what had best be done with the remains of their workshop, which was but half burned. We would suggest that the best thing to do is to pull away the upper stories of it, and then provide the second story with a mill floor and stairs that cannot be set on fire. The loss of accommodation would be best made up by another workshop.

A BILL has been introduced into Congress by Mr. Wells, Representative from Missouri, to incorporate Captain Eads and others into the International Transit Company, for the purpose, as we understand it, of carrying out the scheme of a ship-railroad across the Isthmus, devised by Captain Eads, which we described in our issue of July 5, 1879. No location of route is specified in the bill, which only provides for "constructing such works across the isthmus between North and South America as may be necessary to admit of the passage of ocean vessels." To aid in this the President is instructed to detail two ships-of-war, and a corps of engineers from the army and the geodetic surveys to make surveys of location, and an appropriation of two hundred thousand dollars is made to carry on the surveys. The United States are to aid the company to secure rights of way across the Isthmus, and, if the company fulfils its obligation to construct its works within seven years, are to bind themselves not to grant similar concessions — that is, are to give the company a monopoly — for fifty years, in return for which Congress shall have a right of revision over the tolls. We may hope, now that it has shown its face in Congress, that this unassuming proposition may be consigned to permanent and becoming oblivion in the pigeon-holes of its appropriate committee. Meanwhile what we might call, if politics were our business, the Monroe boom is advancing, and seems to be mixing itself up inextricably with the canal question. We even hear rumors, ingeniously contrived for its support, we fear, of a tripartite alliance between Great Britain, Germany, and France to carry through the Lesseps canal in face of American opposition, and also a report of a mysterious purchase of land by our Government, hitherto unheard of, which gives us a controlling interest along the line of the Panama canal. We find even so discriminating a statesman as Senator Bayard making before Congress, with applause, the oddly inconsequent remark that the canal scheme "is one of world-wide importance, and the heart of every American proclaims that it is to be under the control of the Government of the United States," — all which looks as if Congress were in danger of losing its balance and were easily scared by bugbears.

THE interesting discoveries of antiquarians in our Western States have provoked the issue of a host of questionable stories, one of which we had occasion to contradict as a hoax a few weeks ago, after quoting it from a western paper. Prehistoric caves figure largely in these stories. The most imposing one that we have seen is in a recent letter in the Philadelphia *Tel-egraph*, which spares none of the usual embellishments of architecture. The correspondent, writing from Monroe County, Mo., was brought to a cave entered by an elliptical arch, which "for gracefulness of curve and elegance of finish is not excelled by any of the works of the present day." It was faced with smooth granite, which reflected the torches like polished steel. The springer of the arch rested on an entablature, and that on a column, also of granite. The arch led to a chamber excavated in limestone rock, fifty by thirty-five feet, with vaulted ceiling

forty-five feet high, the walls adorned with twelve granite columns, carrying capitals and carved bases. On a dais at one end was an altar capped with a polished granite slab. On the right was an anteroom with arched doorway. The thing, says the correspondent, is attracting the attention of archæologists, as well it might. Whatever its truth, the story is not *bien trouvé*.

GOTTFRIED SEMPER. II.

GOETHE's celebrated saying that "a tendency to theorize is always the sign of a defective or dormant productivity," of which the great writer was himself in later years so marked an illustration, cannot be applied to Semper. He, indeed, wrote less at Dresden than during other times of his life, but only on account of the great pressure of his official occupation. While he built the monuments which render the Florence of the Elbe one of the most pleasing cities of modern Germany, he still continued to project literary works, and he delighted in arranging a celebrated performance of *Antigone*.

This Dresden period bore much the same relation to the life of the impulsive and revolutionary Semper as did a like experience to the life of Richard Wagner, who in full measure then shared his characteristics. Both were geniuses: shaping for themselves a way through the artistic chaos of our times they certainly deserve that much abused term. Both came to Dresden before they had accomplished any of the works for which they now are celebrated; they executed there, at the same time, what they had for years been preparing, works which immediately took the highest position in the modern art of their country. Both were in direct action upon the barricades of the revolution and were exiled on the same day, to meet in Zurich: their paths have since often run parallel. Personally the upright roughness of the architect, hypochondriac and cynic as he often was, was more lovable than the character of the revolutionary musician, the disclaimer of luxury, since a royal favorite and an æsthetic autocrat. Semper, artistically, but not personally, ambitious, was universally beloved by those who stood near him, though his restless energy often amounted to irritability.

The life of Semper in Dresden was brought to a sudden end by the part which he took in the uprising of May, 1849. An energetic republican, he erected a barricade in one of the streets near the post-office, which was itself a structure worthy of the builder's reputation, and for three days withstood the fire of artillery, defended to the end by its brave architect, who was one of the last to leave the blood-stained streets of the city. It is characteristic of the man that, flying with a price upon his head, condemned to death by the reigning power of Saxony, without a country or employment, hardly with the means of most immediate existence, he was cool enough to stop at Freiburg, on his way to France, and thoroughly study the cathedral, as had long been his desire. Thus was Semper for the second time obliged to seek refuge beyond the borders of his country. From Paris he seriously intended emigration to the United States, and it must be accounted a loss to our callow architecture that he was deterred from this step by a call to London. Here his suggestions and example were of the greatest value for the foundation and organization of the Kensington Museum, where he was for a while instructor. Semper may be said to have made that institution what it now is, in as far as such a task is possible for an individual.

In the mean time his design for the museum of Dresden was carried out, unfortunately, in his absence, not wholly according to the intentions of the designer. The plans had been prepared a little over a year before his sudden exit from the city, and he had himself laid the corner-stone. The museum is in general composition a worthy counterpart to the theatre, and will long stand as a model, especially of the interior arrangement of galleries. The harmony of the building with the Zwinger, which it adjoins, is wonderful, when the quiet grace and dignity of the one and the lawless architecture of the other are considered.

Semper soon felt England to be no field for his practical abilities, and, though he there found leisure for the collection and digestion of much of the material subsequently embodied in his work on style, he willingly accepted a position at the Polytechnic School in Zürich, which institution he raised to the height which it still maintains. In Switzerland he effected much the same salutary change in architectural practice that he had before in Saxony. Zürich itself was ornamented not only by various private dwellings, but by the completion of the Polytechnic Building, with its grand vestibule and Genoese richness of composition. Winterthur was made celebrated by Semper's town-hall, one of his favorite designs. The citizens of that little town have since learned that the advantage of possessing one of the best architectural monuments of the age cannot be too highly valued. Other projects, a Protestant church for Winterthur, and a vast plan of a festal theatre for Munich, made for the present king, have not been executed. The latter is, without doubt, one of the most imposing conceptions of Semper's life.

The before-mentioned fire of 1869 rendered a rebuilding of the Dresden theatre necessary, and this was intrusted to its former architect, who received an honorable and entire amnesty. Indeed, the Saxon legislature would only vote the necessary funds on the express condition that Semper should be recalled and the work

placed in his hands. It would be difficult to imagine a greater tribute to professional excellence in monarchical Europe. The new theatre, recently completed, is one of the most massive and brilliant structures of Germany, a wisely planned organism truthfully expressed; still it hardly attains the quiet harmony of the earlier and less pretentious building.

The last decade of Semper's active life was devoted to Vienna; designing new works, superintending the restorations of the palace, and working with von Hasenauer upon the two new museums and the Burgtheater. His plan of connecting the museums with the proposed additions to the palace, uniting them by grand triumphal arches over the busy streets, making one composition of these structures, is so stupendous an architectural undertaking that it may safely be predicted that its extent and the present condition of Austrian finance will prevent its posthumous execution. Semper's life ended in Rome, where, under the cypresses of the stranger's cemetery, his grave is crowned with well-deserved laurels. His living impulse will be more and more felt as the present generation advances in the difficult task of restoring to architecture its true character.

Semper's designs made trial of every style, from the Venetian palace architecture of the Oppenheim house to the graceful Gothic of his Cholera Brunnen in Dresden. But his preference was for the Renaissance, — a Renaissance, however, not adapted entirely from the great Italian masters of the cinquecento. Semper had studied the remains of the imposing structures of Rome with as clear an understanding and in much the same sense as did Brunelleschi and Bramante. The architecture of imperial Rome, "that petrified idea of a world-wide domination," delighted Semper, and to his mind "compared with the architecture of the Greeks as a symphonic instrumental concert compares with a hymn accompanied by the lyre." He was truly an original master of the Renaissance, and his works, approaching more nearly to the modern necessities and conceptions which are yet to form the architecture of the present advancing civilization, are, perhaps, more worthy of study than the designs of Italian masters of three hundred years ago which have become absolute catechisms of professional instruction. Architectural forms, when used in other ages than those in which they were developed or decided, are a mask. A "style" is nowadays that dress in which the nakedness of the modern art of building is wont to cover itself for genteel parade. With Semper, however, the pediments and pilasters of the Renaissance are, at least, a powerful means of architectural characterization, and are often so modified as to be peculiar to him. It is to be regretted that his studies of Greek antiquity were so exclusively restricted to polychromy. Color was in ancient times one of the most powerful means of the builder. Characteristic of his time in that one respect, Semper was unable to use this means. Most of the men of the present age seem, by long inactivity of their sense, to have become architecturally color-blind. Semper was by nature eminently a master of form, and his architectural studies of ancient color showed to him, as unfortunately to most, little more than an incomprehensible historical phase of past architectural art. Semper's professional speech betrays but slight familiarity with Greek forms. He had learned mainly from Roman adaptors, not from Hellenic creators, and this still further marked him as of the Renaissance. As an architect of the best spirit of the cinquecento he cannot be too favorably judged. He attained with Roman forms a nobility of effect, a delicacy and cheerful warmth, which is rare in that highest period of Italian art.

But great as Semper was as a designer, proud as Zürich, Winterthur, Vienna, and above all, Dresden, may be of his buildings, he is greater still as a thinker and author. Nothing is rarer than so fortunate a combination of artistic creative power with profound theoretical knowledge. Scattered as many of the smaller essays are, a complete collection of his writings is to be desired. The publication of the theatre, with its valuable suggestions of acoustical and theatrical importance, has been cited above. The most extensive book, the work upon which Semper's reputation will chiefly depend, is *Der Stil in den Technischen und Tektonischen Künsten*. The last edition was published at Munich in 1878. It is badly arranged, incomplete, opens with an unnecessary and abstruse consideration of the most elementary conceptions, it abounds in digressions, and is throughout of very uneven value. But however embarrassed by what must be regarded as ballast, its absolute value is very great. The following are the smaller works and essays of Semper which are known to the writer. The list may, perhaps, not be absolutely complete, but nothing of importance is wanting.

Scopimento d'antichi Colori sulla Colonna di Trajano. *Bullettino dell' Instituto di Corrispondenza archeologica*. Roma. 1833.

Vorläufige Bemerkungen über bemalte Architektur und Plastik bei den Alten. Altona. 1834.

On the Study of Polychromy and its Revival. *Museum of Classical Antiquities*. London. 1851.

Die Vier Elemente der Baukunst. Braunschweig. 1851.

Wissenschaft, Industrie und Kunst. Braunschweig. 1852.

Observations on some Specimens of Metal-Work. Marlborough-house. London. 1853.

On the Origin of Polychromy, in Apology for the Coloring of the Greek Court, by Owen Jones. London. 1854.

Ueber die formelle Gesetzmässigkeit des Schmuckes und dessen Bedeutung als Kunstsymbols. Zürich. 1856.

Ueber die bleierne Schliendergeschosse der Alten. Frankfurt.

1859. An attempt to demonstrate the dynamic origin of certain forms in nature and art.

Ueber Baustyle. Zürich. 1869.

An extended work, *Vergleichende Baulehre*, projected by Semper and advertised by Vieweg in Braunschweig, 1852, seems never to have been published.

Semper as a writer is forcible and terse. His logical exposition of that of which he is convinced is brilliant. In controversy he was unsparing and sarcastic. The style is characteristic of the man. His faults were lack of order, perhaps often of application, and a certain irregularity and unevenness too often peculiar to great minds. Had he been less apt to lose his time and lame his energy in conviviality he might have avoided these. But, as it was, he was a profound and clear thinker, and one of the best practical architects of modern times. Architecture seems to have lost its impetus and stage-way since the Renaissance fell into the whirlpool of the Rococo, and the impetus of so powerful a mind in the present crisis, in the confusion of a new start, cannot be too highly prized.

J. T. C.

ELEVATOR SHAFTS. I.

THE following suggestions are offered to the profession by one of their number who has had considerable experience in advising in relation to the disposition and arrangements of elevators, with a view to relieving them of the objection that they tend to increase the destructiveness of fires in burning buildings.

Elevators being of two kinds, designed for the conveyance of freight or passengers, the elements of danger resulting from fire are the same with both. Therefore all elevators are subject to the same considerations with reference to the fire question.

All elevators may be divided into two classes, — open elevators and shaft elevators, — and it is presumed that people will have one kind or the other as suits their convenience. Until recently freight elevators were generally open and passenger elevators were enclosed. Now many of the former are closed, and some of the latter open. A favorite method with passenger elevators is to enclose them simply with wire guards from floor to ceiling, or to run them up in light holes or in the well-holes of stairways. In the last case they have no enclosure whatsoever, and do not cause additional openings in floors.

Any increase in the number of floor openings in a building increases the chances for fire to spread with facility. If the floor-openings are super imposed the best conditions for causing a draught are attained. Supposing that no means are used to prevent fire from communicating with the several floors by either hatches or doors, the shaft elevator is the most dangerous. It is a flue in which the flames gain intensity. They burst out through the side openings on every story, while their whole remaining force is spent in the uppermost story. If furnished with a large ventilator at the top or a glass roof, the flames may find vent and may not be distributed, and the shaft may even draw in a current from every story. The value of this suggestion was recently illustrated by a fire in the Newhall House, Milwaukee. The upward current will always be less violent through open hatchways without enclosure, but the ultimate results are the same. When a shaft is enclosed with wood-work having sashes in the sides, the conditions for spreading fire are the best possible. The shaft itself furnishes additional fuel. A very slight fire in a basement may thus become a raging flame at the top of a shaft. The sashes break and the fire spreads in every direction.

All shaft elevators should be enclosed with brick walls from the foundation to at least six feet above the roof. All substitutes for bricks when used for this purpose are inferior and seldom less expensive. They may be admissible when it is desired to enclose an existing elevator, but there is no good reason why they should be used in new buildings. As it is often necessary to place the elevating machinery under the shaft or in one of its walls, thereby causing necessary openings, a small compartment should be built in the basement contiguous to the base of the shaft, of brick, and of sufficient size to contain such machinery. This compartment should have as small an entrance opening as possible, and it should be furnished with an iron door, with springs to keep it closed at all times, so that the opening between the compartment and the shaft may not be the means of communicating fire through it from the basement story into the shaft. As in all shafts which are perfectly closed at all openings, so as to keep fire from entering, the air is liable to become heated at times, a brick flue should be built from some place on the exterior of the building to the base of the shaft to supply fresh air. It should have no openings except at the two ends, and a sliding door at the elevator end will enable the conductor to regulate it at will.

All brick shafts should not only go through the roof, but should be furnished with good-sized ventilators at the top. With a fresh-air flue at the base and a ventilator at the top the air will be constantly renewed by the pumping action of the elevator as it ascends and descends.

Every shaft elevator should have, in addition, a skylight on the top. This is for two purposes. First, to furnish light. A skylight covering the entire top of an elevator will always give all the light needed, whether it be a freight elevator without a cover, or a passenger elevator with a glass or wire top, no matter how high the shaft

is. It is far better than side windows, which are entirely unnecessary, and are useful only when the elevator is below them. The second purpose of a skylight over a shaft elevator is to supply something which will be quickly destroyed and give the largest possible vent to the flames and smoke should they enter the shaft. For this reason the thinnest glass is the best to use; and to avoid the danger of firebrands from without falling down the shaft the glass should be covered with fine and strong wire netting placed six inches above it.

It is needless to add that every shaft such as I have described should have a good iron door at every opening, and that such doors should always be closed except on the floor where the elevator is required for use. The openings should be only as large as required for the nature of the business to be done, both as to width and height. On a freight elevator it is usual to make them nearly the full width of the elevator and on a passenger elevator they are seldom needed more than three feet in width. There are very few cases in which it is necessary to make an elevator door more than seven feet high, and all the doors should be of the same height. It is best on freight elevators to leave eight inches of brickwork on each side. It is not necessary that the doors should be heavy, such as those required to close openings in party walls. It should be remembered that the main object of an elevator door is to keep the fire and smoke out of the shaft until the appliances for putting out a fire arrive on the spot, and it is not essential that they should have the resisting power of a vault door. The doors should be sufficient, however, to keep any flame which might enter the elevator from below from spreading at the several floors, and to carry it to the vent at the top, where it may escape harmless. Therefore they should be stiff, and so secured that they will not warp when suddenly heated. They should be light, so that they can be easily handled. A latch and hinges are not sufficient to prevent warping. The best method is to secure the door in slides, so that no dependence is placed on hinges or latches. As the doors are liable to be heated on the inside by fire entering the shaft from below, they should not come in contact with any woodwork. It is best, therefore, to place them on the inside of the shaft between the car and the wall. A patent door now in extensive use in Chicago best serves this purpose. It slides up and down in iron grooves. Being divided horizontally in the middle, the lower half (which is hung by chains passing over pulleys to the upper half) descends as the upper half ascends. The parts are latched when they come together. The door also has automatic attachments, so that it can be opened and closed by the movement of the elevator.

As the openings to freight elevators must be nearly as wide as the shafts, there never is room to slide a door sideways on the inside of the shaft, and if a sliding door is placed on the outside it is liable to obstruct valuable room. The same objection holds with swing doors; but the main one is that on account of their great width they have to be hung in two folds, which adds to the labor of handling them. Iron doors have been used on the outside of shafts which slide upwards in grooves, and are counterbalanced by weights. But with such doors there is twice as much weight on the chains and pulleys as in the doors which divide in the middle, and the wear and friction are double, requiring twice as much labor to lift them. They have to be raised and lowered seven feet at a time, while the movement in operating the counterbalanced door is only half as much. The conductor has to step off of his elevator to open and close them, while he can manage the counterbalanced door from his place.

All doors on freight elevators should have latches on the inside only, so that they are entirely under control of the conductor. When so provided they cannot be tampered with or left open by unauthorized persons. It is a necessity that every shaft elevator should be furnished with a signal bell having pulls on every floor, so that the elevator can be called when desired, and then only is there any necessity to open the door. No power elevator can be safely run without a regular conductor. Any elevator, however safely constructed, whether as to protection of human lives or against fire, becomes a dangerous machine when operated by unauthorized persons, or by any number of persons who may have access to it.

The main points to be observed in all shaft elevators are, first, to keep the fire out of the shaft, and, second, if it gets into it to let it pass harmlessly through the top. In case of this last contingency, if the shaft is properly constructed, when the fire is quenched at the point where it originates no further danger may be apprehended from the existence of the shaft.

With regard to passenger elevators in shafts it may be said that any such thing as an attempt to make them fire-proof is almost unknown. There are very many with well-constructed brick shafts, but with wooden doors having open panels fitted with wire-work on every story. Such elevators, it seems needless to say, are the worst kind of fire-flues that it is possible to have. The doors are generally double, one a movable door which when opened slides past a stationary one. Some passenger elevators are made more safe against fire, but less convenient, by having a single wooden door, hung on hinges, and opening outward on each story. It seems to be a pre-conceived idea with those who build elevators and with many who use them that it is necessary for the passenger to see the elevator coming and for the conductor to have a full view of every floor as he passes it. Yet all such elevators are invariably provided with signal bells, so

that the elevator can always be called and the conductor can always tell where he is wanted. These ideas are born simply from habit, and are based only on the belief that what has been must always be. It has been objected also, and has even been found by experience where the doors have had glass panels, that to close up the shaft causes the air in it to become very hot. This is so; but the method of ventilating the shafts which I have pointed out above is always feasible and does away with this objection.

There can be no practical objection to making passenger elevator shafts thoroughly fire-proof in the manner that I have pointed out for freight elevators, the opening on each floor being reduced to the smallest dimensions consistent with convenience. The use of fire-proof iron doors with automatic attachments will satisfy the conductor who wants to see each floor as he passes, for the doors will open and close as he goes by each floor. But to make the use of such fire-proof doors entirely convenient it is necessary that the cab be provided with a sliding door having a wire panel. This door should not be opened except to let passengers on or off, and if no one desires to land or get off, and the elevator passes an opening, there will always be the closed door of the cab in front of it, so that practically there will be no opening and the gazers will be equally satisfied. It should be a rule also that every conductor should be obliged to open the cab door after stopping and close it before starting. The amount of labor for the conductor, who is by the old method constantly engaged in opening and closing doors on the platforms, will be greatly diminished, and he will only have his cab-door to manage.

Inasmuch as both shaft and open elevators can be made reasonably safe against fire, the decision as to whether to have one kind or the other should be controlled mainly by its location in the building. A shaft elevator should be used only where it cannot obstruct valuable light; as, for instance, anywhere in the interior of a building. If placed against an exterior wall it will generally occupy the space of a tier of windows, and if the windows are introduced to carry out the exterior symmetry they are useless to the elevators, since a skylight, which is needed just as much, would suffice. In the case of a store where goods are to be taken directly from the exterior on to the elevator it may be advisable to enclose the first story only in order to keep out draughts of wind from the street entrance, but it is best to have an outside vestibule with fly doors and to arrange the shipping room around the elevator, making the elevator open all the way up, having only a guard for protection against accidents. But if the shipping room is in the basement it is best to enclose the elevator with sash-work in the first story only, and depend upon hatches to close the floor-openings.

ROMANESQUE ARCHITECTURE.¹ III.

It certainly seems to me that, in these great Italian churches, we have before us a distinct round-arched style, an independent form of architecture worthy to rank side by side either with the architecture of the entablature or with the architecture of the pointed arch. One of the three great forms of construction, a form constructively as good as either of the other two, is here provided with a good and consistent decorative system. It is hard to see what more is wanted. It is hardly possible to conceive any architectural forms more perfect and stately than the arcades of the nave of Pisa. The decorative forms are consistent and elegant; in some, indeed, of the later buildings of the style, especially at Lucca, they put on an almost extravagant richness of detail, but yet without departing from the purity of the round-arched ideal. But if we admit that the columnar form of the Italian Romanesque is a pure and genuine style, that it is a legitimate decorative carrying out of one of the great types of architectural construction, it follows that the architecture of classical Rome must be looked on as something imperfect and transitional. The Romanesque of Pisa and Lucca is the classical Roman set free from the incongruous elements which clung about it, set free from all traces of the days when Roman architecture was a mere imitation of Grecian form. The one Grecian feature which could be really adapted to the Roman principle of construction has been adopted and naturalized, and it has been proved to be capable of doing as good service in the new system as it did in the old. If here and there traces of another system of decoration may be found hanging about the buildings of this style, they are in positions so unimportant as to be of little consequence in the general effect. They in no way interfere with the claim of the columnar Romanesque to be looked on as a pure and independent style, as the consistent carrying out of an architectural conception which the classical Roman attempted only very imperfectly. Paradoxical, then, as the position may sound, I think that I have made out my case, and that the classical Roman is essentially an imperfect style, a mere transition to the more perfect Romanesque.

But the columnar Romanesque of Italy was not the only architectural form in which the round-arched construction clothed itself. Another variety arose which was an even more legitimate development of the Roman manner of building. This was that form of Romanesque which cast aside the use of the column as a main constructive feature, and rested its arches on vast square piers. The column, where it was used at all, was used only as a purely decorative feature, as a mere nookshaft in the angles of the rectangular

piers. This mode of construction, also, was of Italian birth: we see it in the great Lombard churches of Milan and Pavia, and it spread itself in different forms over all the lands north of the Alps. We see it in its greatest purity in those German buildings of which I have already spoken, where the main arcades exhibit the square pier and the round arch as their one feature. And we find a great number of forms which we may call intermediate between the column and the square pier. We find rectangular piers so surrounded by attached shafts that the columnar element, though purely decorative, is that which has most share in the general effect. And we find piers of cylindrical form, sometimes of distinctly columnar form, which have little enough in common with the graceful monoliths of Ravenna and Lucca. In England, above all, we find those enormously massive round piers which by no straining of language can be called columns, but which are rather to be looked on as masses of wall analogous to the square piers, only taking a cylindrical instead of a rectangular form. And, though the construction of the square pier and that of the column are quite distinct in idea, we constantly find them mingled together in practice, not only in contemporary buildings in the same country, but even actually in the same building.

Now to the purely classical mind it is perhaps harder to admit that the Northern Romanesque is a genuine and perfect style of architecture, one to which the classical Roman was a mere transition, than it is in the case of the columnar Romanesque of Italy. There is a temptation to set aside the Romanesque buildings as not forming any really distinct style of architecture, to look on their earlier forms as the mere expiring traces of Roman art, and to look on their later forms as the mere foreshadowing of the coming Gothic. There is a temptation to do this even in Italy, and north of the Alps the temptation naturally becomes still stronger. In the earlier examples of the Northern Romanesque the work, it cannot be denied, is often of extreme rudeness. And even in the later and more finished forms of the style, such as our own enriched Norman, stately and noble as is the general effect, the mere detail, when it attempts anything coming strictly under the head of sculpture, is apt to be much less beautiful than grotesque. But the question is not as to the merit of detail, but as to the consistency of the constructive and decorative systems. The Northern Romanesque, no less than the Southern, carries out boldly, honestly, and consistently that round-arched construction which the classical Roman timidly strives to mask. It might be an untoward accident that ages which stood very high in the art of strictly architectural design stood very low in the art of merely decorative sculpture. But this does not affect the general principle. The Romanesque style, Northern as well as Southern, the style of Normandy and England no less than the style of Italy, succeeds in carrying out that principle of construction which the classical Roman failed to carry out. I hold then that the works of the early Cæsars are to be looked upon as simply transitional between the pure style of the entablature and the pure style of the round arch; they are simply imperfect attempts at a mode of building of which one type was carried to its highest perfection at Pisa, and another type was carried to its highest perfection at Durham.

Romanesque architecture then is neither a mere corrupt Roman nor yet a mere imperfect Gothic. It is a genuine independent style; it is the highest development of the construction of the round arch, just as the Grecian is the highest development of the construction of the entablature, and Gothic the highest development of the construction of the pointed arch. As an architectural conception, it stands on equal terms alongside of the other two. In historic interest, to one who fully grasps the history of civilized man as one long unbroken drama, I do not hesitate to say that the buildings of the Romanesque ages surpass the buildings either of purely classical or of later mediæval times. No buildings of earlier or of later times bear about them the same charm as those which arose at the bidding of Diocletian, of Theodoric, of Justinian, of Charles, and of William. The one city of Ravenna, standing like an isthmus between two worlds, rich in the tombs and temples of the last Italian Emperors and the first Teutonic Kings, might alone supply matter for the study and meditation of a life.

Of both forms of Romanesque, the columnar type and that which employs the massive square or round pier, Italy is alike the parent. But as one type reached its highest perfection in Italy and the other out of Italy, the one by the banks of the Arno and the other by the banks of the Wear, we may fairly speak of them severally as Southern and as Northern Romanesque. This division is purely constructional, without any reference to the dates of particular buildings. As works of art, Spalato and Torcello, eight hundred years apart, must be placed closer together than either of them stands to the great mass of buildings which came between them. But we must also cast a glance at the history of the Romanesque style as looked at from a more strictly chronological point of view. A long study of the subject in various parts of Europe, in the course of several journeys, some of which were undertaken for the special purpose of studying Romanesque architecture, has, I trust, enabled me pretty well to trace out the history of the style. In that history, as far as Western Europe is concerned, I can discern two main periods of very unequal length. The former drags out its being from the third century to the eleventh, without its being possible to draw any broad line at any intermediate point. The latter takes in the busy time from the middle of the eleventh century to the middle of the twelfth, one of

¹ See pages 23, 27, ante.

the richest times of architectural development in the whole range of the history of the art. The main distinction between the two is that, during the former period, Italy set the fashion to the whole of Western Europe, while, during the latter period, most of the great countries of Europe, Italy among the others, struck out independent forms of Romanesque art for themselves. The buildings of the former class are comparatively rare, but they are scattered over all the lands from the Orkneys to the Pyrenees and the Alps, and they everywhere bear the most striking likeness to one another, and the most undoubted signs of being imitated from common Italian models. The buildings of the latter class are to be found in abundance everywhere, and they strike the inquirer by their remarkable diversity, a diversity shown not so much in their detail, which is often strikingly alike in countries far apart from one another, as in the general character of their architectural conceptions. The former class, till somebody helps me to a better name, I shall speak of in a body as Primitive Romanesque. The different varieties of the latter class are best called after the countries in which they severally arose or were brought to perfection, Norman, Aquitanian, German, Italian, or any other. In England the two classes are commonly known as "Saxon," or "Anglo-Saxon," and "Norman." The latter name is a thoroughly good one, if only people will not speak of "Norman," "Early English," "Decorated," and "Perpendicular," or of any other less familiar set of names, as four or seven styles or periods on a level with one another. The later Romanesque of England was undoubtedly of Norman invention, and it was brought into England under Norman influence. But the use of the word "Saxon" to express our few and scattered examples of the earlier form of Romanesque is liable to all the objections which always apply to the vague use of that misleading name and also to some further objections special to itself. Besides the absurdity of talking of Saxon buildings or Saxon anything at York or Lincoln, the name further suggests the idea that the Saxon style was something peculiarly English, whereas our surviving Saxon buildings are simply rude examples of a style common to England with the rest of Western Christendom. The first Christian buildings which were reared in Britain after the English Conquest were said to be built after the Roman fashion,¹ and after the Roman fashion they went on being built till the Normanizing Edward brought over a new style of building from his beloved Normandy.²

THE ILLUSTRATIONS.

STONE HALL, WELLESLEY COLLEGE, WELLESLEY, MASS. MESSRS. WARE & VAN BRUNT, ARCHITECTS, BOSTON.

THIS is a hall of chambers arranged for a family of one hundred girls, the older students of the college, and is intended to provide them with all the requisites of a home, including dining-rooms, kitchens and laundries, one hundred and four chambers or studies, with smaller parlors for social uses and a large general parlor, with an open-timber roof, overlooking the lake. The space occupied by the music-rooms on the plan of the second story will be devoted to other purposes, it being in contemplation to erect a conservatory for musical instruction in another part of the grounds. The building occupies the entire summit of a low hill, the slopes of which are well wooded, about four minutes' walk from the main college buildings. Its walls are of brick and terra-cotta, and the interior partitions are also of brick throughout, without wood furrings. All the external walls are vaulted with eight-inch spaces, and the corridor walls are built with flues for ventilation and heating, the latter communicating with hot-air chambers in the basement, which are furnished with steam radiators. The conditions of the gift, for which the college is indebted to Mrs. Valeria G. Stone, of Malden, Mass., are that the building shall be built and furnished, ready for use in all respects, at a cost not exceeding the sum of \$100,000. The contracts are made and the foundations in place, and the building will be completed and furnished a year hence, within these limits of cost. Messrs. A. E. & O. L. Giddings, of Exeter, Mass., are the general contractors.

DETAILS OF STONE HALL, WELLESLEY, MASS. MESSRS. WARE & VAN BRUNT, ARCHITECTS, BOSTON.

INTERIOR OF THE DINING-ROOM IN THE HOUSE OF J. A. BURDEN, ESQ., TROY, N. Y. MESSRS. POTTER & ROBERTSON, ARCHITECTS, NEW YORK, N. Y.

THE RESTORATION OF ST. MARK'S.

A GLANCE at a photograph of the church will show even those who know nothing technically of architecture that the central dome and the domes of the nave are supported by a series of vaults, of which the four chief — those of the nave, apse, and two transepts — carry directly the weight, being supported in turn by a secondary series, which are again supported by a lower series, in which, on the south side, the baptistery is situated. On this side the main vault of the transept is cracked open by the yielding of the secondary sup-

ports and the outer wall of the baptistery which takes the thrust in the last instance. This crack, now repaired as well as it can be, was, however, extending before the late repairs on that side, and it is easy to see that the farther yielding of the foundations of the outermost wall and piers beyond a small limit must have brought the whole of the south side of the nave with the corresponding transept into ruin. And it was precisely in these foundations that the most negligence was shown by the builders in preparing their work, as may be seen by the floor of the baptistery, which rises in the centre many inches above its margins.

Before the repairs of this south flank began, I think about 1865, the wall on this side was cloven apart vertically so as to be sustained principally by the iron clamps used in the construction, and which were by oxidation reduced in places to a thickness of less than half an inch. The lovely little canopy which forms the southern extremity of the façade had its outer columns reared on a foundation of rubble extending scarcely beyond the bases of the columns, and only a foot and a half thick. The whole south flank, as may be seen by the cornice, which runs the length of the façade, has sunk several inches more than the north flank, the worst result of which appears in a serious crack over the central door of the main edifice.

The first thing to be done, then, was to arrest this greater subsidence of the southern wall, and as this menaced a fall into total ruin from the fissures in the brickwork underneath the shell of beauty which alone seems to have excited the anxiety of the public, there was no choice but to take the old wall down and reconstruct it on solid foundations. The shell had to be taken down and the brickwork renewed, in the course of which operation it was found that the builders, to procure temporary cohesion of the masonry, had laid short beams of wood in the work, which time and his helping had reduced to dust. This brickwork relaid and braced strongly to the inner wall, which remained, the shell was restored to its place as well as could be. This is the renovation which the lovers of art, some ignorantly and some from the feeling that it were better to let the buildings go into slow and complete decay than to mingle new with old, have cried out against. On this score Commendatore Meduna justifies himself, I think, satisfactorily by showing, first, the photograph of the portion in question, before it was disturbed, side by side with one taken recently, and that in the photograph there are only two visible alterations, viz., the abolition of a sixteenth century monument in sufficiently bad taste which had been obtruded there, and the restoration of the northern small window to its original shape, indicated by the remains of the mullion and tracery, which he has religiously preserved; and secondly, by showing the condition to which the shell had been reduced, the slabs composing the veneer of the wall being reduced to fragments (where not fall n away in dust), which it was impossible to handle, much less restore to their places. This may be understood by any one who will look at the condition of the adjoining doorway on the façade, where the marble slabs are in some cases so corroded as to crumble under the touch, and only held to the brickwork by bolts and braces, many in fragments, and all gaping so as to show the extensive erosion of the brickwork underneath. But in the restoration this veneer is, with the exception of two small columns in the colonnade above and some capitals, the only new material used in the whole work, every column of the lower range being of the original and nearly every capital; some of the latter being the original bolted and cemented together to preserve as far as possible every fragment of the old work, — some capitals being in half a dozen pieces, — only two being new; and the old columns are not even recut, at most having their inner surfaces, less acted on by the sea air than the outer, turned outward.

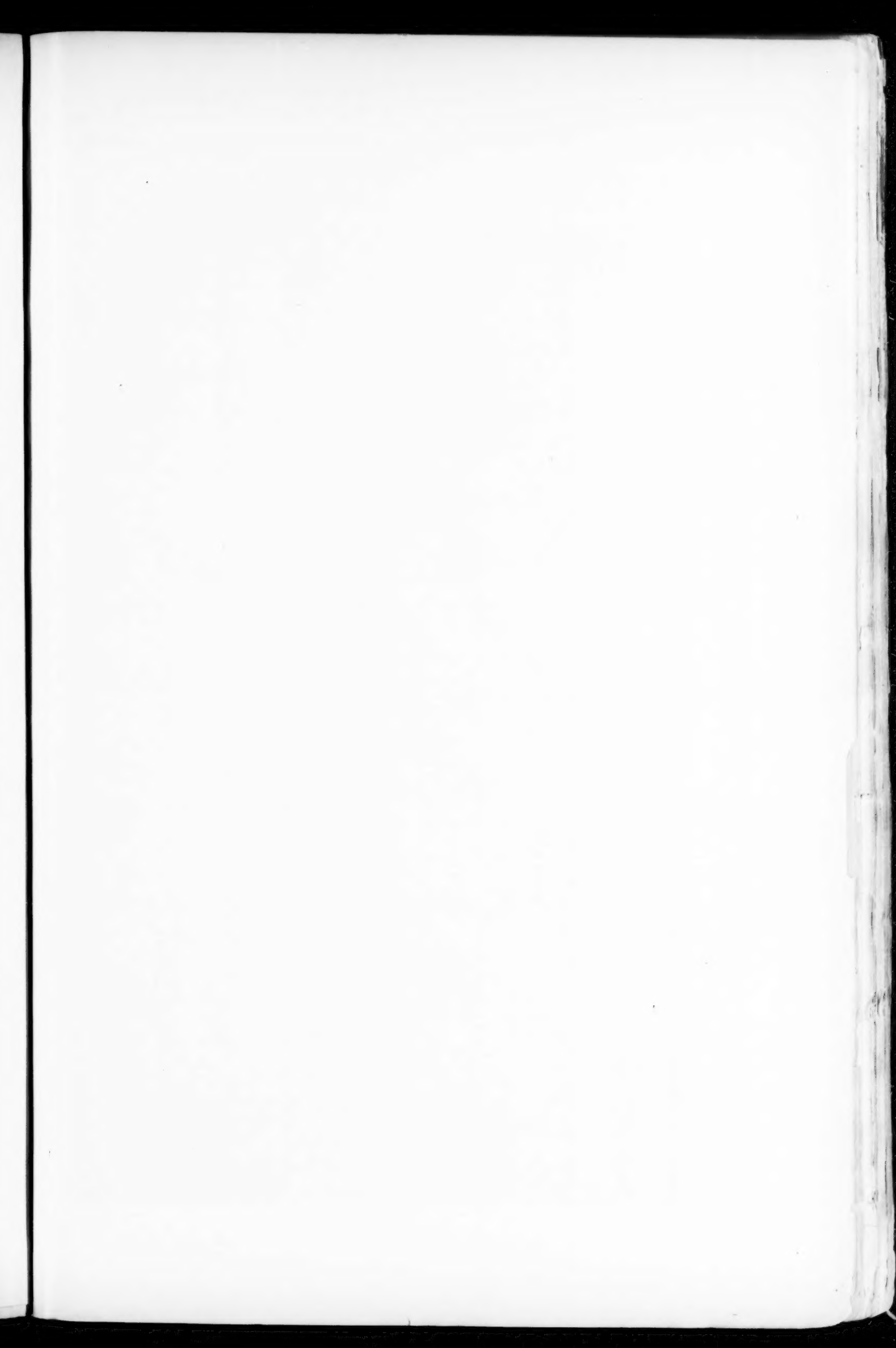
The mosaics on this flank have been religiously preserved, as well as all the sculpture in the arches; the two niches above having been filled with wood and canvas solidly fastened together in a block and the wall cut away from behind them, and when the new masonry was ready they were restored to their places. Unfortunately, the portion which strikes the eye of the visitor is the new veneer of gray marble identical with that which was originally used, but the new surface of which jars on the sense of color. Time will harmonize it, but meanwhile a wash of sulphate of iron would remove the rawness without injury, as there is no sculpture or design of any kind in it. One must go over this section of work, already finished ten years, piece by piece, as I have been, to understand the extraordinary zeal with which the architects have labored, not to renew, but to preserve, every fragment of the old handiwork, the substitution of new sculpture being a fraction of one per cent, if things may be so sated, of the old retained. Your space would not permit me to detail all the precautions taken by the architect to preserve the exact relations of all the parts, even to the curve of the great window on this side.

On the north side, again, the decay of the veneer compelled the renewal of most of it; but every piece of sculptured stone is restored to its original place, and the veneer in general is of the same stone as the original, the only exception being that verde-antique, the quarries of which are unknown, is replaced by the nearest approach to it which was attainable in Europe.

So much for what has been done. As to what was proposed by the architect's plan, so far from a general demolition of the façade being intended, the plan of immediate operations consists in removing the veneer and its relative columns of the doorway nearest the southwest angle, the refacing of the corroded brickwork, and the re-

¹ On these early churches see Bada, Hist. Eccl. I. 33 (cf. III. 4), and Vita S. Benedicti, § 5. Benedict himself brought builders from Gaul to build "juxta Romanorum morem." The arts of Italy, Gaul, and England were the same.

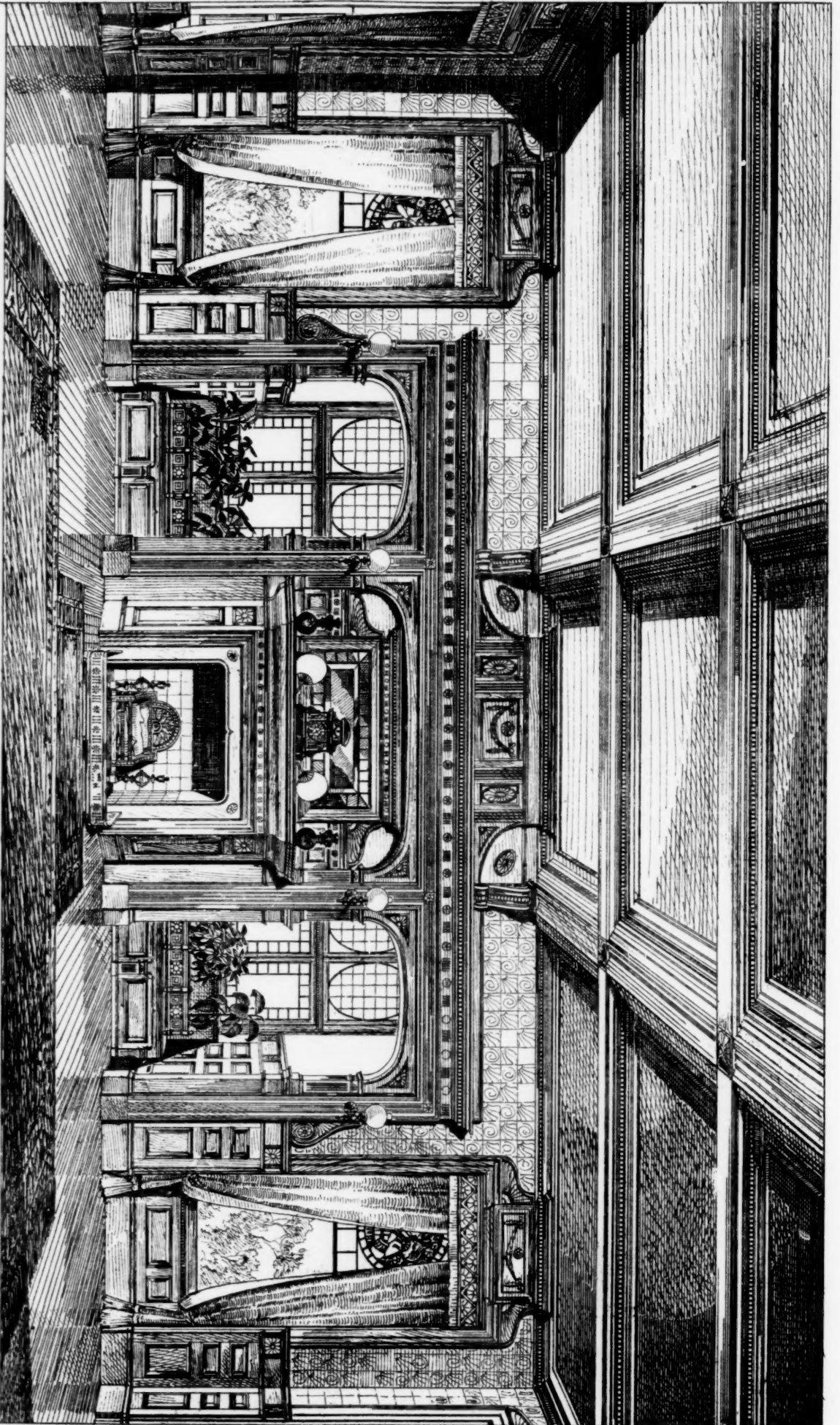
² Will. Malmb. Gest. Reg. II. 28. "In eadem ecclesia die Theophanie sepultus est, quam ipse illo compositionis genere primus in Anglia edificaverat quod nunc pene cuncti sumptuosius emulantur expensis."

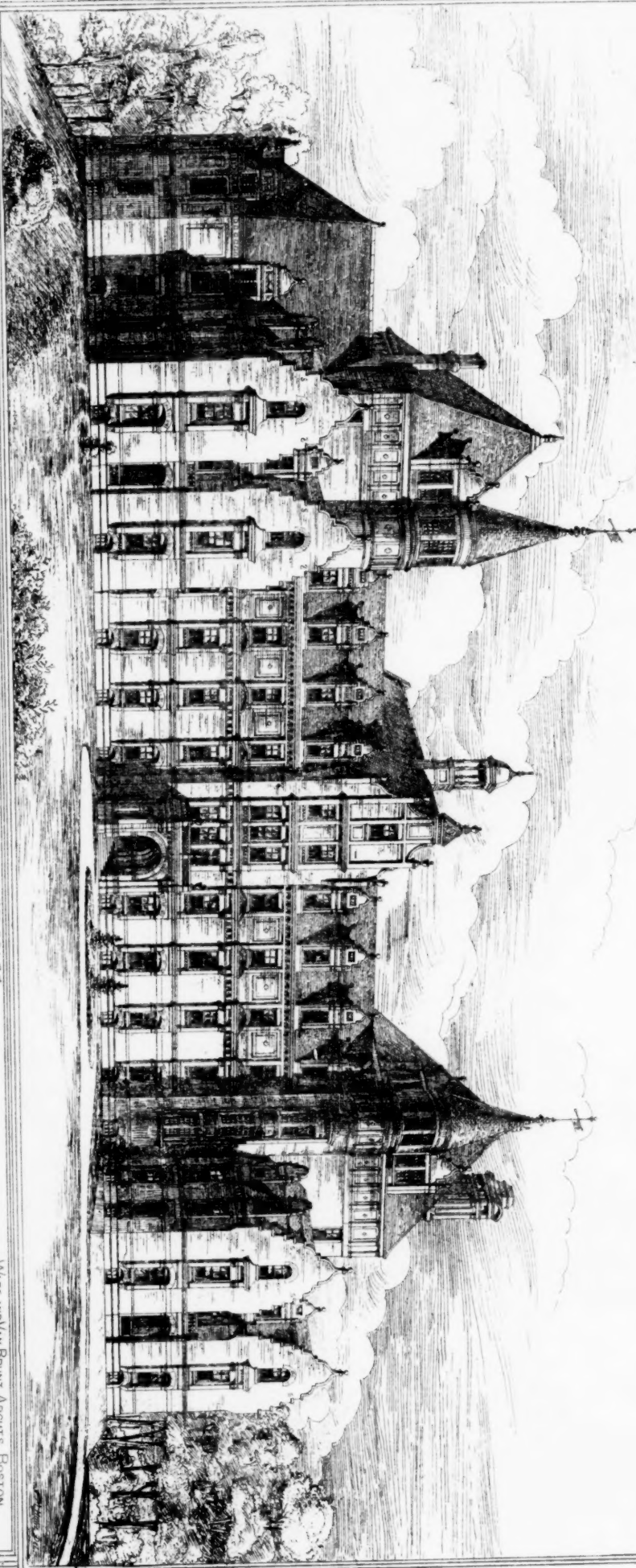


Designed by J. A. Greer.

View in Dining Room of House for Jas. A. Burden Esq. Troy N.Y. Messrs. Potter & Robertson Architects New York.

The interior is shown in the front of the house.

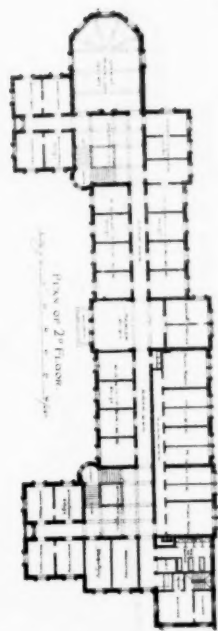




STONE HALL, WELLESLEY COLLEGE, MASS.

WARE AND VAN BRUNT ARCHT'S., BOSTON.

THE HENNINGSEN PRINTING CO. 135 FRANKLIN ST. BOSTON.



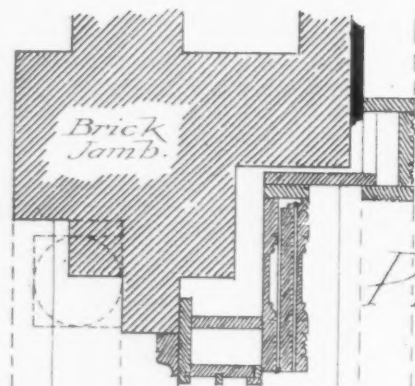
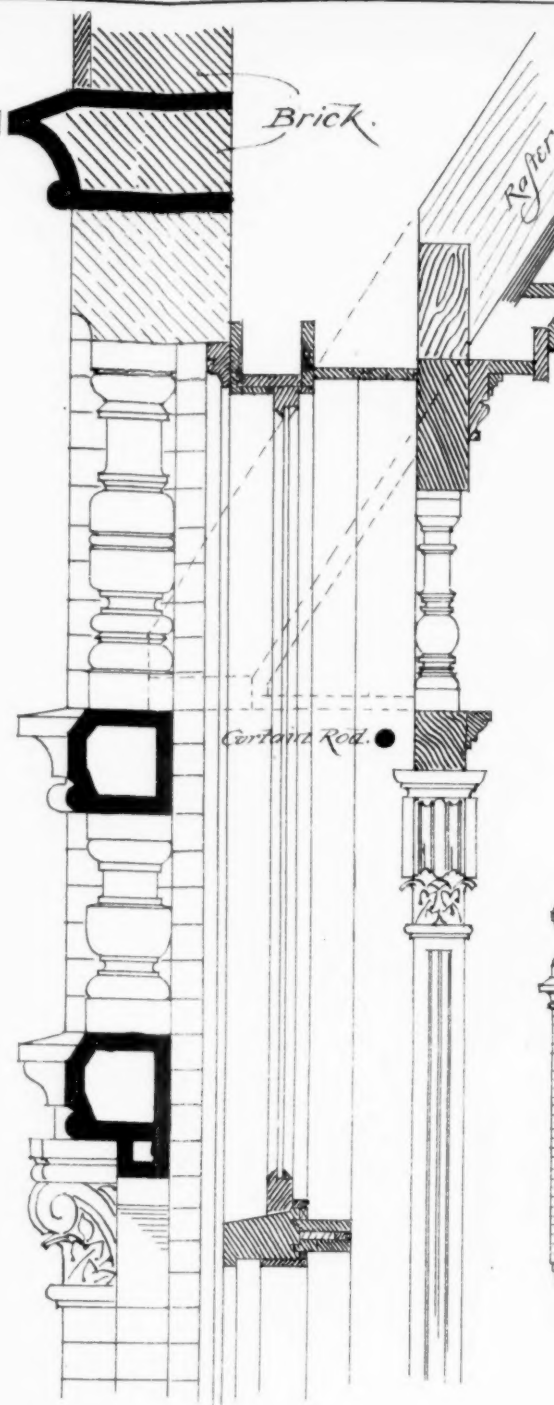
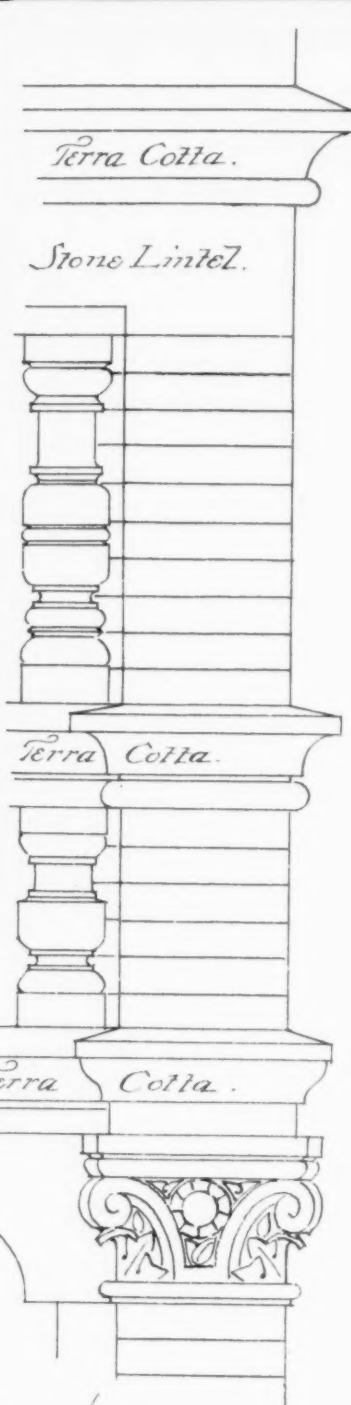
PLAN OF 2nd FLOOR

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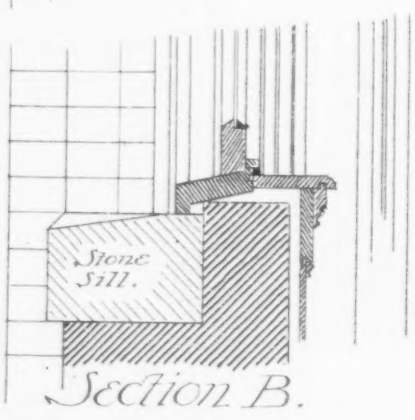


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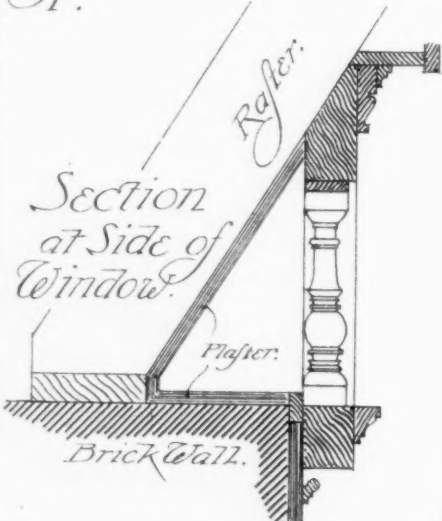
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Plan at A.

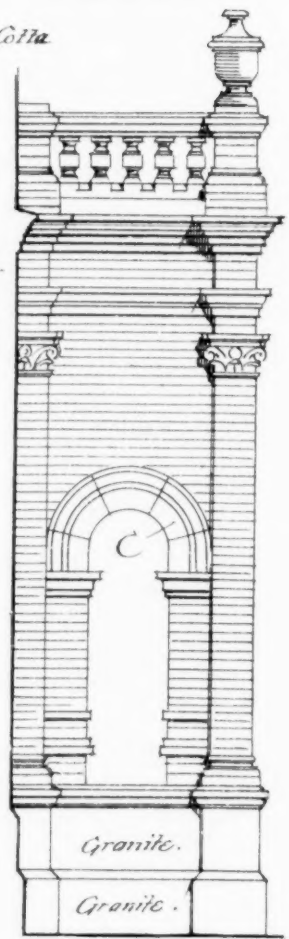
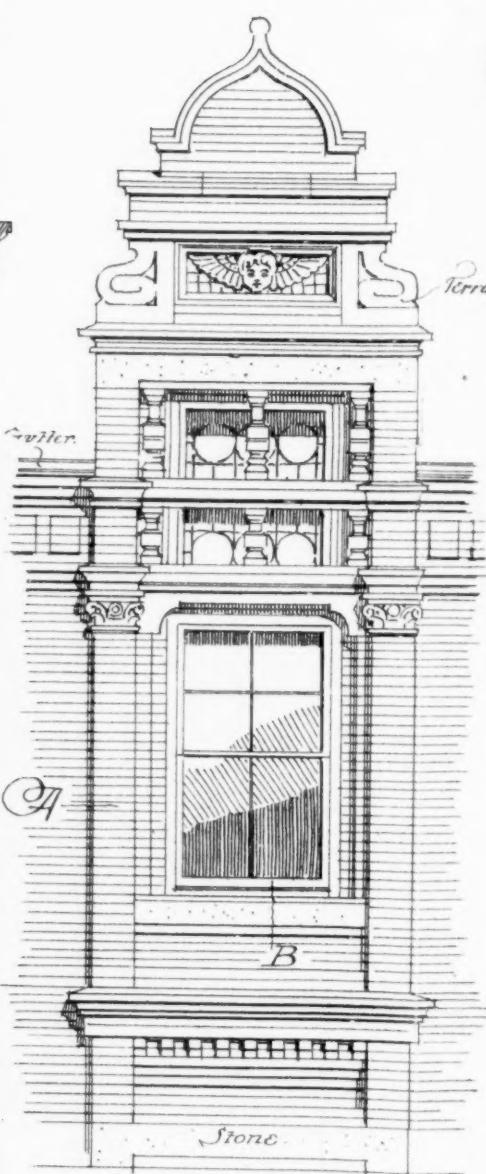


Section B.



Section at Side of Window.

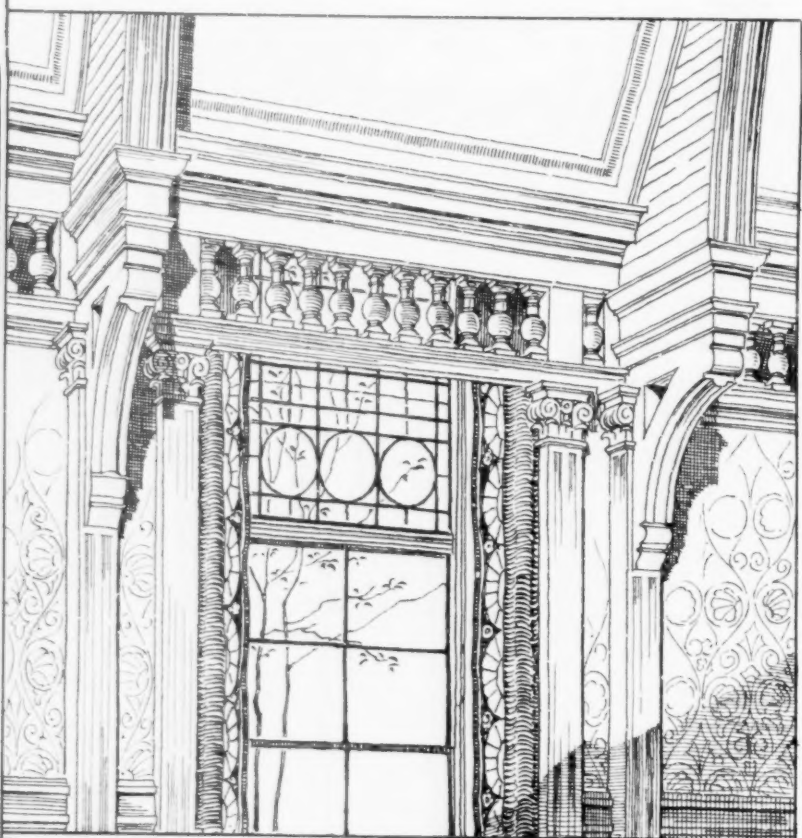
Section Thro' head of a Great Parlor Window.



A

B

C



Interior View of a Great Parlor Window.

Outside Elevation of a Great Parlor Window. Side El. of Porch.

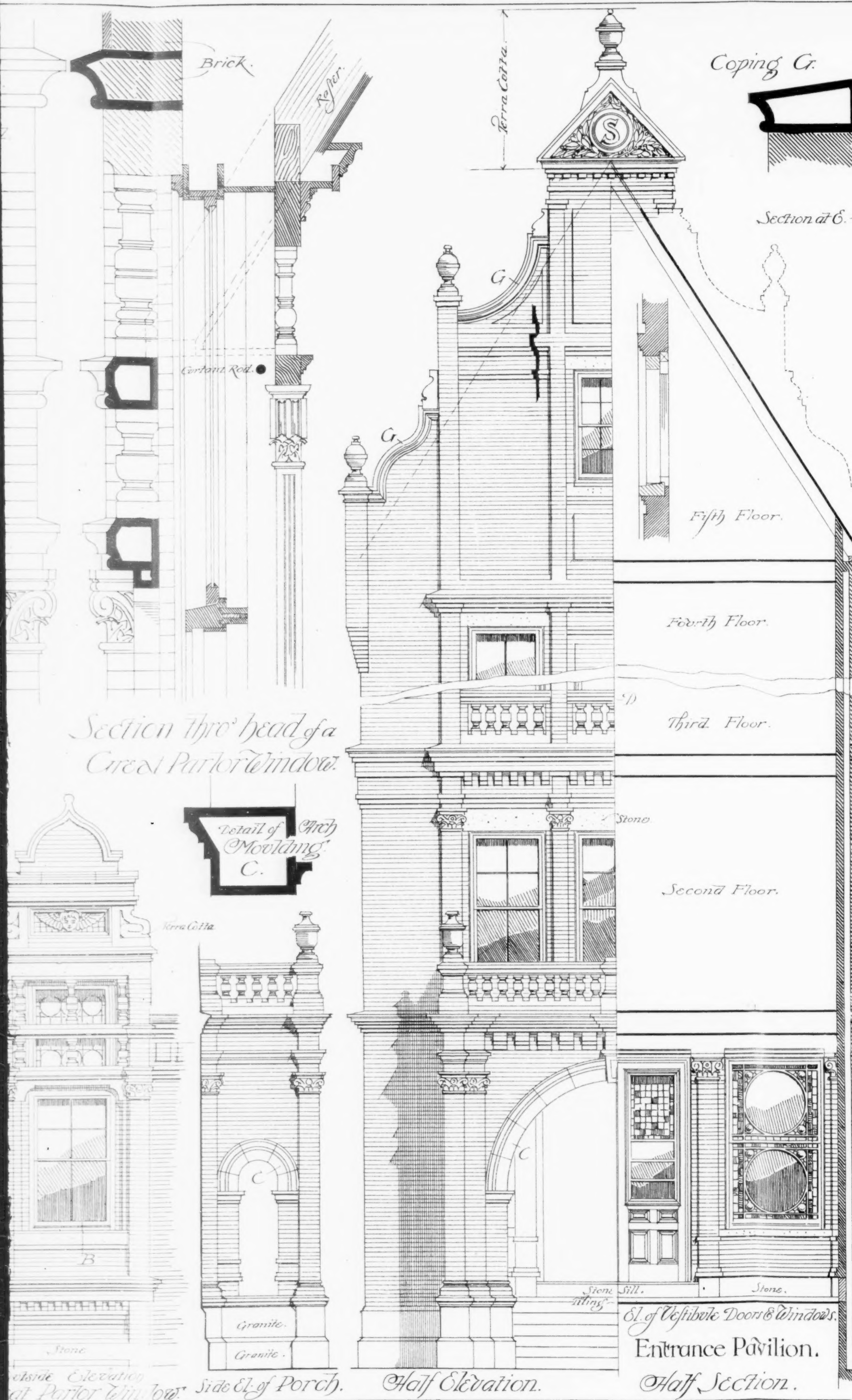
Drawn by D.A. GREGG.

Stone Hall * Wello



Wellesley College · Wellesley · Mass. DETAILS ·

Messrs. WARE & VAN BRUNT · Architects · Boston ·



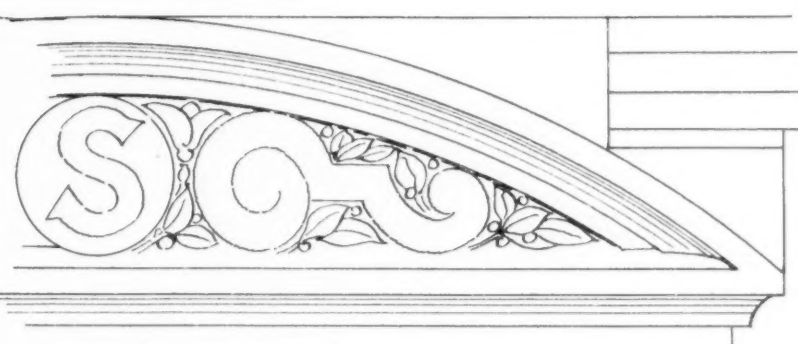
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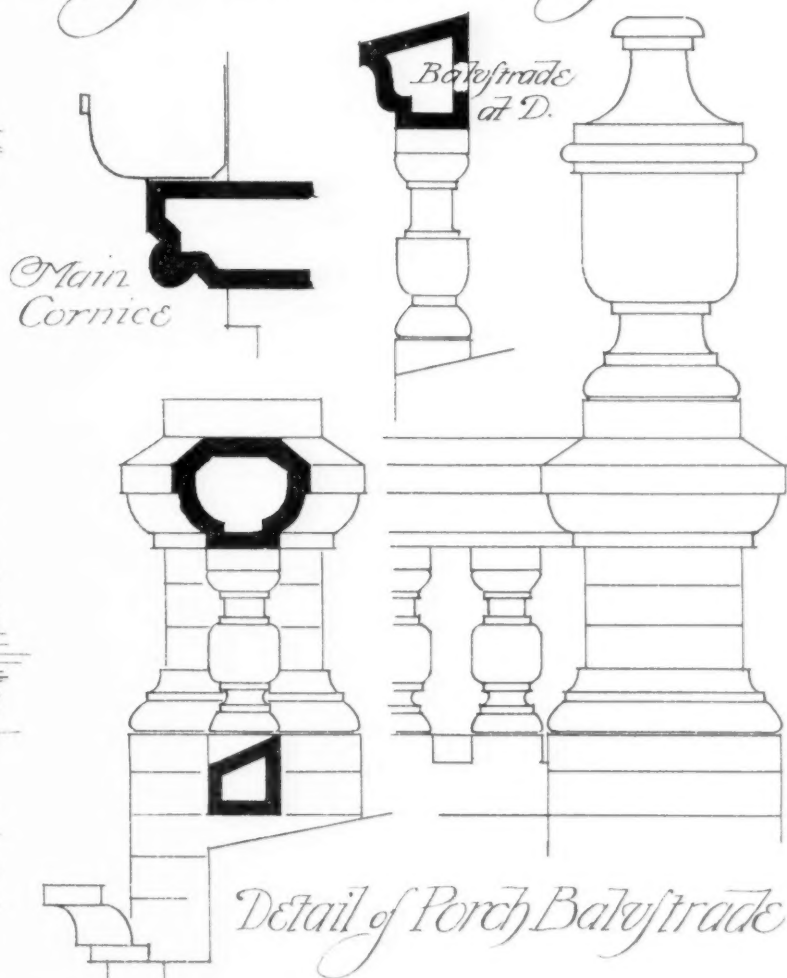
Note

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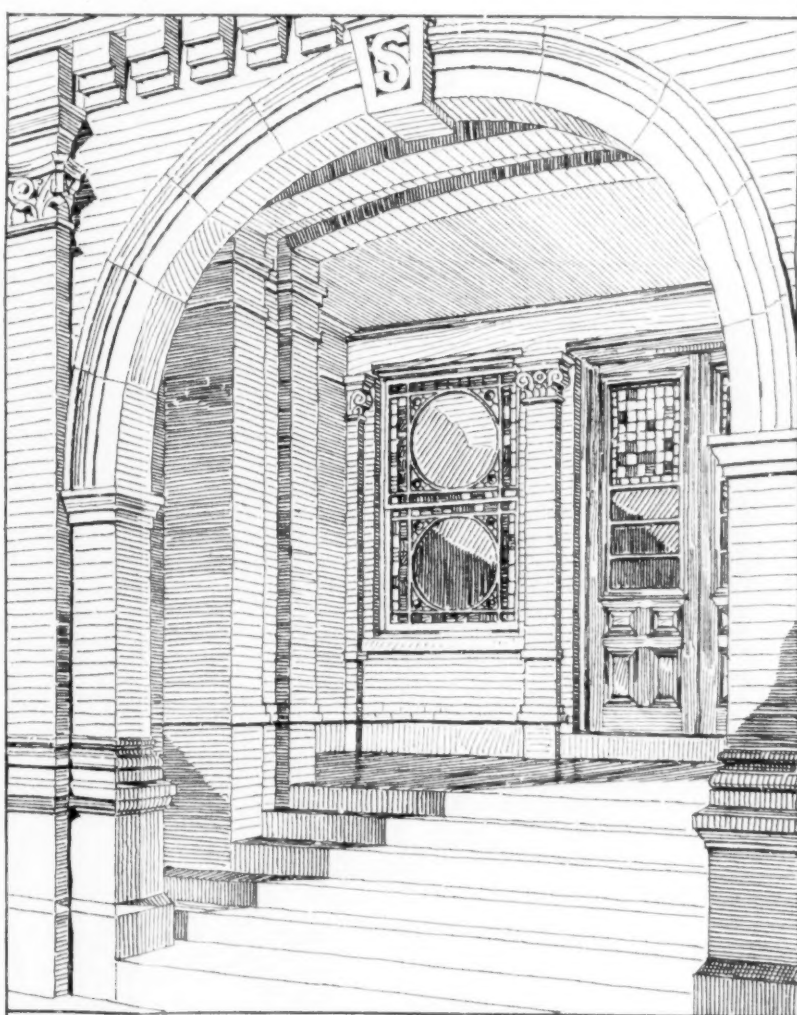
The Scale of Elevations &c is One
fourth inch to the foot.



Detail of Pediment, 2d Story:



Detail of Porch Balustrade:



Perspective View at Entrance Porch:

storation of the old columns, cornice, etc., to their place, with replacing of such slabs of the veneer as are absolutely unfit for further use. The whole of this is now held in place by wooden supports and iron and copper bolts, without which, and especially the huge beams of wood which now carry the whole of the upper columns on one side, the entire shell would fall in. Here the substitution of new material will be very slight, and involves no sculpture or column. The second doorway, adjoining the central, needs, and will receive at some not far distant time, the same treatment, but the employment of new material there will be even less than in the southern doorway. The whole veneer, not only on the façade, but in the portico and on the front of the church proper, is falling away from decay of the bricks in the masonry within, but the walls themselves are regarded as sufficiently secure, nor has there been, the architect assures me, any plan entertained for a demolition and reconstruction of the front of the church, or for the disturbance of any part, beyond the facing of marble and the columns which flank each doorway in two tiers, unless in removing this shell the brickwork should be found to be more gravely compromised than is now suspected. The northern canopy is much more displaced than any other part of the façade; but as it does not affect the stability of the church, it will not be disturbed, though much disfigured by the iron bars necessary to keep it from falling.

The only step which the most fastidious person who desires the stability of the church can object to is the leveling of the cornice which runs the whole length of the façade of the portico, and which, while keeping the true line, has sunk at the south end several inches, evidently during the construction of the church, as the irregularities of the foundation are most apparent, as well as the correction of them by making the space between the keystones of the arches and the cornice above them of unequal breadth. In the reconstruction of the southern canopy this portion of the cornice has been raised to a level with the northern extremity, a change which I think is to be regretted, as the irregularity of the building throughout, though mainly due to bad foundation and construction, had been condoned and compensated for in the subsequent operations, and this alteration will necessitate the bringing up of the portion of the cornice over the next doorway to the same level, to avoid the break in the line.

As to the mosaics, the same system has been followed. Every part of the mosaic which could be kept together has been preserved, and the work now going on in the baptistery is merely the removal of parts of the mosaic which are actually crumbling and cannot be secured to the wall by any device. The ceiling is cracked in every direction by old cracks, now arrested, and these cracks have involved the mosaics in strips and patches, which are being restored, and in general so well that from the scaffold on which the mosaicists are at work it was difficult to distinguish the old from the new, even when pointed out to me. — Venice Correspondence of the London Times.

CORRESPONDENCE.

THE BUILDING TRANSACTIONS OF THE PAST YEAR.

NEW YORK, January 8, 1880.

THE report of the Superintendent of Buildings for the last quarter of the year 1879 covers one of the busiest years which the Department has had. In number of plans offered for inspection and in the amount of proposed cost the figures of the year 1879 show most forcibly the return of the season of business prosperity. Locally, the report has an important bearing, as showing what the establishment of rapid transit has done for the metropolis. It was not until 1878, and in June of that year, that the elevated roads began their actual work. It was too late in that year for any general attempt on the part of land-owners to take advantage of them; but by the opening of the building season of 1879 everybody was convinced that the roads were to fulfil their objects, and such as were prepared began to build houses with a vim, and all the year through the upper wards have been crowded with workmen. In plans offered the numbers were, first quarter, 211; second quarter, 344; third quarter, 199; fourth quarter, 206; making a total for the year of 960 plans, or 2,065 houses, as many of the plans were for rows of houses. This was against a total of 753 plans in 1878. In the matter of alterations the returns show the number of plans to have been, first quarter, 339; second quarter, 491; third quarter, 262; and last quarter, 209; or a total of 1,301, embracing changes to 1,373 buildings. During the year 1,739 new buildings have been commenced and 1,417 have been completed, while of alterations the figures for both classes were 1,226. There were in progress, when the year opened, 741 new buildings; and when the year closed 1,045 were in the hands of the builders. In the matter of alterations, 117 were in progress at the opening and 126 at the finish of the year. Comparing the year with its predecessors as far back as before the panic of 1873, the returns show: —

Year.	No. of Plans.	Estimated Cost.	Year.	No. of Plans.	Estimated Cost.
1872	1,728	\$27,884,870	1876	1,379	\$15,903,880
1873	1,311	24,936,535	1877	1,432	13,365,114
1874	1,383	16,667,417	1878	1,672	15,219,680
1875	1,406	18,226,870	1879	2,065	22,567,312

The Board of Examiners, who are supposed to act as an advisory body to the Superintendent, had 28 meetings during the year, and considered 262 petitions for modifications of the building law on new buildings, of which 221 were granted, and of 162 petitions for modification on alterations, 118 were granted. That part of the duty of the Superintendent which gives him authority to make existing buildings safe has been vigorously enforced, though not too much so. For eighteen years past the record of this department stands: —

Year.	Made Safe.	Taken Down.	Year.	Made Safe.	Taken Down.
1862	49	16	1871	892	62
1863	96	53	1872	398	38
1864	71	37	1873	819	58
1865	83	33	1874	1,466	67
1866	225	32	1875	1,586	90
1867	335	22	1876	1,531	71
1868	235	22	1877	1,088	67
1869	305	38	1878	856	77
1870	478	52	1879	650	56
				11,166	891

The quality of the several buildings and the channels into which the money spent in building has gone may be seen in the following table: —

	Number.	Estimated Cost.
First-Class Dwellings.....	764	\$10,362,400
Second-Class Dwellings.....	253	1,018,650
French Flats.....	253	3,672,200
Hotel.....	1	25,000
Tenements.....	399	3,537,750
First-Class Stores.....	32	1,126,000
Second-Class Stores.....	11	78,500
Third-Class Stores.....	16	20,475
Office Buildings.....	12	364,500
Workshops.....	80	699,914
Schools.....	6	166,000
Churches.....	5	33,200
Public Buildings.....	22	824,050
Stables.....	85	391,713
Frame Houses.....	126	246,900
	2,065	\$22,567,312

The locations of the buildings may be seen in the next table, giving the number of buildings offered from each ward, with the estimated cost. —

Ward.	Number of Buildings.	Estimated Cost.	Ward.	Number of Buildings.	Estimated Cost.
1	11	\$271,200	13	12	\$51,950
2	3	105,000	14	13	421,000
3	2	160,000	15	17	509,050
4	5	36,000	16	30	282,800
5	17	169,850	17	19	121,325
6	5	77,900	18	24	382,635
7	14	143,450	19	678	10,564,350
8	29	467,054	20	53	476,300
9	41	351,450	21	41	892,395
10	10	79,000	22	162	1,753,033
11	25	115,150	23	158	568,575
12	668	4,649,895	24	28	38,000
				2,065	\$22,567,312

Superintendent Dudley, in speaking of the work of his Department, says to the mayor, "I would respectfully call the attention of your honor to the marked increase in the building operations of the past year, plans having been submitted for a greater number of buildings than during any year since 1872. This increase requires constant vigilance on the part of the officers of the Department, to detect and prevent infractions of the law, and although the plans submitted during the past year provided for the construction and alteration of 557 more buildings than those of the year 1878, 421 less violations of the law are reported, which indicates a disposition on the part of owners and builders to more fully comply with the requirements of the law."

There have been many important buildings which will date their beginnings from the year just closed. Much of the building has been of architectural importance, and in the way of departure from

¹ First-class dwellings are those intended for occupation by one family only, while second-class may be occupied by more than one. The distinction between French flats and tenements is often a very meagre one, the general rule being to style a house a French flat when each family has its own water facilities, and otherwise to class them as tenements. Third-class stores are one-story affairs, or mere hawking sheds.

² The city, as is well known, is a long and narrow island, with the recent addition of the Twenty-third and Twenty-fourth Wards in the lower end of Westchester Island. They are as yet very rural, and all the frame buildings are in their precincts. Cutting the city across at Fortieth Street, the Nineteenth, Twelfth, Twenty-second, Twenty-third, and Twenty-fourth Wards lie above that line, and all the other wards south of it.

the old routine brown-stone front. Several of the private residences are specially noteworthy. Following somewhat the order of their entry, some of the more costly of the buildings are noted below.

The freight-receiving depot of the Cunard Steamship Company, covering their dock, cost \$40,000; a business building on the site of the Grinnell Building, so widely known as Delmonico's, Fifth Avenue and Fourteenth Street Place, cost \$60,000; it is of brick and stone, and is from the hand of one of the young architects in the city; No. 113 Fulton Street, iron-front stores, \$50,000; brewery for Geo. Ehret, Ninety-third Street and Second Avenue, \$75,000; the bachelor apartment-house on Washington Square, cost \$65,000; a quaint structure, made such by special design, but having a very modern purpose and motive; the car-house of the E. C. Railroad Company, at One Hundredth Street and Third Avenue, is merely a shed, with some interest in construction, cost \$100,000; private house on Fifty-seventh Street, near Fifth Avenue, for J. L. Riker, \$45,000; the Sherwood Studio Building, Sixth Avenue and Fifty-seventh Street, cost \$80,000; this curious structure, designed by its amateur-architect owner, is a model in its way, of the adaptability of means to an end; a flat at Fifty-ninth Street, near Seventh Avenue, \$50,000; model tenements at Monroe and Corleers Streets, by Field & Son, so successful in the Brooklyn White Model Tenements, cost \$45,000; 1 and 3 Bond Street, replacing the iron structure swept away by fire several years ago, \$120,000; flats on Broadway and Fifty-fourth Street, cost \$82,000; two private houses for Cornelius Vanderbilt, on Fifty-seventh Street, costing \$45,000 and \$75,000 respectively; private residence for David Dows, Fifth Avenue and Sixty-ninth Street, cost \$125,000; the Stevens House in Wall Street, near Broadway, costing \$200,000; the German Masonic Temple on Fifteenth Street and Second Avenue, cost \$40,000; asylum for the Children's Aid Society at Gouverneur Street, cost \$40,000; a stable at Fifty-second Street and Madison Avenue, for W. H. Vanderbilt, costing \$40,000; the Seasingood Building, 83 Green Street, cost \$40,000; iron-fronted store, 42 East Fourteenth Street, \$45,000; residence for Geo. Opdyke, Fifth Avenue, near Forty-seventh Street, \$55,000; the Tallman flat on Fifty-ninth Street, near Seventh Avenue, cost \$75,000; a store on the Van Rensselaer property, 203 Grand Street, \$10,000; the Bernheimer residence, 5 East Fifty-seventh Street, cost \$40,000; reservoir and high water works, Ninety-seventh Street and Ninth Avenue, cost \$64,000; house for indigent newsboys, Lafayette Place and Fourth Street, \$111,500; store for Hon. Henry Hilton, on Twenty-third Street, \$60,000; the Union League Club, \$350,000; store at 8 East Fourteenth Street, cost \$45,000; public school on Lexington Avenue, near One Hundred and Fifth Street, cost \$53,000; and one at 209 East Forty-sixth Street, costing \$56,000; Broadway and Clinton Place for the Sailors' Snug Harbor Store, cost \$50,000; the flats on the Rhinelander estate, Second Avenue and Eighty-sixth Street, cost \$110,000; 287 Madison Avenue, F. F. Thompson, residence, cost \$50,000; residence for Cornelius Vanderbilt, Fifth Avenue and Fifty-seventh Street, cost \$75,000; office building, No. 3 Courtlandt Street, cost \$150,000; W. H. Vanderbilt, residences on Fifth Avenue, from Fifty-first to Fifty-second Streets, costing \$400,000 and \$300,000 respectively; the Dollger brewery, 422 East Fifty-fourth Street, cost \$50,000; the store structure at Broadway and Grand Street, cost \$120,000; E. A. Wickes, residence, 14 West Fifty-seventh Street, cost \$40,000; residence on the Astor estate, 374 Fifth Avenue, cost \$70,000; factory at Twenty-second Street and Tenth Avenue, cost \$40,000; José F. Navarre, double house, 3 East Fifty-seventh Street, cost \$50,000; stable for Cornelius Vanderbilt, 36 East Fifty-eighth Street, cost \$50,000; residence of W. K. Vanderbilt, Fifth Avenue and Fifty-second Street, cost \$200,000.

TESTING THE SUSPENDERS OF THE BROOKLYN BRIDGE.

At the last monthly meeting of the Brooklyn Bridge Trustees, an important report was submitted by trustee Isaac Newton, who was requested to test seven of the suspenders of the bridge in the machine in the United States Arsenal, at Watertown, Mass. The tested suspenders were chosen at random from those made for the bridge. The object of these tests was to ascertain the efficiency of the mode of securing the suspenders to the parts by which they are attached, respectively, to the main cables and to the suspended superstructure. These suspenders are attached to a wrought-iron fixture at one of their ends, and to a casting at the other end, by being inserted into conical sockets $3\frac{1}{2}$ inches in diameter at the base of the cone. At the other end the diameter is just sufficient to allow the suspender to be passed through. The suspenders are secured in these sockets by spreading the wires which compose the rope, and then driving in the voids tapering pins of wrought-iron; the projecting wires are turned over, and the cavities filled with lead. The tests seem to show that turning over the wires and filling the cavities with lead do not add to the strength of the fastening. The length of the tested suspenders ranged from 18 feet $9\frac{1}{4}$ inches to 24 feet 3 inches. The strain to which they were subjected varied from 141,000 pounds to 194,000 pounds. In none of the tests was the full strength of the suspender ropes themselves brought out, and in no case did the suspender pull out of its socket.

The maximum stress that can be brought on any suspender from the weight of the structure alone, or the dead load, as it is termed, is

8,200 pounds, and from the movable, or rolling load, 13,125 pounds, making a total of 21,325 pounds. The mean breaking-strain of the seven suspenders which were tried was a trifle over 168,000 pounds, or over seven times the strain which they will ever be required to stand. If the lowest breaking-strain of the seven tests—141,000 pounds—be taken, the factor of safety will be about seven. Mr. Newton's report was received and ordered on file.

The executive committee reported that the amount required to complete the bridge is as follows:—

Estimated cost of the bridge, Feb. 1, 1879.....	\$13,708,026 60
Expended at that date.....	10,163,553 64
Amount required Feb. 1, 1879.....	\$3,544,473 06
Expended since that date up to Dec. 1, 1879.....	\$1,006,262 64
Cash on hand and receivable from two cities at this date.....	596,676 04—\$1,622,938 08
Remaining to be provided for.....	\$2,001,534 98
Add for rise in land, materials, and labor 10 per cent since Feb. 1, 1879.....	\$209,163 49
Add for contingencies.....	48,311 53
Grand total to be provided for.....	\$2,259,000 00

This is subject to a reduction of an estimated credit to the bridge for gores and pieces of land left in purchases, amounting to \$125,000. In this connection, the committee submitted the draft of a bill for presentation to the legislature, calling for an appropriation from New York of \$750,000, and from Brooklyn of \$1,500,000, for completing and opening the bridge to public travel. The bill directs the controllers of the two cities to borrow this money, and to pay the interest upon it until the completion of the bridge and its opening. It also relieves the trustees from paying, after January 1, 1880, the interest on the bonds issued by the two cities under the provisions of Chapter 300 of the Laws of 1875, and places this responsibility upon the cities themselves. The second section of the bill authorizes the trustees to dispose at public sale of such gores or pieces of land which they have acquired, but now consider unnecessary. On the motion of J. S. T. Stranahan the bill was approved unanimously. The financial condition of the bridge up to December 31, 1879, was reported as follows: Cash receipts, \$11,332,257.26; cash expenditures, \$11,216,431.93; cash balance in bank, \$115,825.33. The cash liabilities amount to \$76,839.55. — *New York Times*.

Colonel Paine is the engineer who has the sole charge of the wire. He says: "We had knowledge of the defective wire as well as of that which was approved, as it was all subjected to the same test. When the discovery was made that rejected wire had been put in the cables we thus had data at hand for ascertaining very nearly the strength of the defective wire used. As the two cables were carried on at the same time we were very nearly able to locate the place where it had been worked in. The deficiency in the strength of the cables was made up by the addition of approved wire. In making the calculation, where any question arose, an allowance was made liberal enough to exceed any possibility of defect. For this reason the cables are undoubtedly stronger than they would have been had there been no weakness to remedy. I would consider myself criminally-negligent to allow any weakness at all in the cables. In a word, as the defect was more than made up by the addition of a good wire, the structure as it now stands more than meets the requirements. No one connected with the bridge has ever attributed the accident which occurred in June, 1878, to any defect in the wire, as has been alleged. The cable itself was sound, and broke from its fastening because the rope supporting it had been cut into by passing over the edge of one of the sheaves. Until after that occurred there was nothing but good wire used in the construction of the cables." — *Philadelphia Telegraph*.

THE DELAWARE SHIP CANAL.

THE Secretary of War has transmitted to the Senate a letter from the Chief of Engineers, and accompanying it a copy of a report from Major W. P. Craighill, Corps of Engineers, of a survey made on the Peninsula of Maryland and Delaware, in compliance with the requirements of the acts of June 18, 1878, with a view to the construction of a ship canal, to connect the waters of the Delaware and Chesapeake Bays. The report sets forth that the surveys were conducted under the personal supervision of Mr. N. H. Hutton, beginning in August, 1878, and closing in January, 1879. Six routes are estimated for, as shown in the following table. [The lengths given are, respectively, from Baltimore to a common point at sea, twelve miles outside of the Delaware Breakwater. The distance from Baltimore by the route now used to the same point is 325 miles, or 334 hours, allowing a speed of ten miles in open water, and eight miles in dredged channels.]

Name.	Length in Miles.	Length of Canal Proper.	Cost.	Relative time of transit in hours.
Choptank.....	149.81	37.67	\$16,560,000	19.5
Choptank (inland).....	138.91	31.00	18,250,000	18.
Wye.....	128.42	42.99	20,533,253	17.75
Queenstown.....	107.29	53.78	37,260,000	17.
Centreville.....	106.38	50.95	41,500,000	16.5
Southeast Creek.....	115.78	38.35	25,000,000	13.75
Sassafras.....	129.25	16.20	8,000,000	15.1

[No 2.—The length of the Choptank inland route is excluding Broadkill.]

Mr. Hutton, in the course of his report to Mr. Craighill, says: "A review of the preceding figures and remarks would indicate that the Sassafra route is the shortest in time, and the cheapest route, but has very expensive approaches to maintain, and very serious conditions to overcome, if it is to be used during the winter. The Centreville and Queenstown routes are the most direct, rate second as to time, but cost largely in excess of other routes, have expensive approaches to maintain on the Chesapeake side, and are, as the Sassafra route, liable to obstruction by ice during the winter. The Choptank route rates slightly below the Sassafra as to time of transit, and rates third in this respect, while it is second on the list in point of cost, its greatest advantages being in the matters of freedom from obstruction by ice and economy of maintenance of approaches." Mr. Craighill, in a supplemental report, dated January 8, 1880, states that the foregoing estimate for the Sassafra River route was based upon data derived from the report of Mr. B. H. Latrobe, on his survey of 1874. A new survey was executed in December, 1879, and as this route is preferred by many because of its being the cheapest yet estimated for, it would seem to determine the cost of enlarging and otherwise modifying the existing Chesapeake and Delaware Canal, which debouches into the Chesapeake Bay by way of Elk River, the entrance thereto being only a few miles from that of the Sassafra. The United States has already spent about \$500,000 on the Elk River route. The new estimate for the Sassafra route amounts to \$8,500,000, or about \$500,000 more than the previous estimate. It is for a ship canal 100 feet wide on the bottom, 26 feet below low water; side slopes, one and a half to one, with a berm on one side 12 feet wide and 30 feet above the bottom. The other estimates are for a canal 100 feet wide at the bottom, 26 feet below mean low water; the width to be 178 feet at low water; the locks to have chambers 600 feet long and 60 feet wide; tide locks only to be built, and these will probably be generally open, and only exceptionally used.

CAST-IRON FURNACE CONSTRUCTION.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

Dear Sir, — I notice Mr. Putnam's letter in your last issue. He says my former criticisms were based on the "supposition that he found a pressure of two or more atmospheres necessary to cause mercury to pass through cast-iron," and accounts for my criticism on the ground of oversight. But such was not the basis of my criticism, nor do I wish to plead oversight. I based my criticism not upon any supposition that a pressure of several atmospheres was represented as necessary to show permeability in cast-iron, but upon this, namely, that the article in question (on page 20) described an experiment which the writer had taken pains to illustrate by a cut, showing a man standing on a stool pouring mercury into a gas-pipe and the mercury spitting about the floor. Taking this with the context, I drew the inference, perhaps unjustly, that the writer considered the permeability at high pressures as a matter of considerable consequence as an argument. If it was not described and illustrated with a view of its application by the reader to the permeability of the same material under pressures likely to exist in furnaces, why introduce it at all? If it cannot be so applied, then the experiment, with its illustration, seems to be irrelevant, and serves no purpose but to catch the reader's eye. All I intended to say was, that if so applied as an argument, I think it involved a *non sequitur*, and I think so still. If not introduced as such an argument, then I was wrong and beg the writer's pardon. While on the subject, I wish to refer to a statement in Mr. Putnam's letter, where he says that the outward pressure referred to and measured by the manometer, as described on page 20, is "in all furnaces liable to exist at any time." I do not agree to this, for I see no good reason to suppose such a pressure possible with a good smoke-pipe opening from the top of the furnace, as in case of Chubbuck's, illustrated on your page 30, and various other patterns of stoves. If such liability exists, it must be due to an explosion of gases, that ought never to be allowed and which can easily be prevented by ordinary care. At any rate, such incidents can hardly be said to be "liable to exist at any time." The original article states (page 19) that the use of cast-iron for gas-piping had been abandoned in favor of wrought-iron. I was not aware that cast-iron was ever used for gas-piping, except for sizes of two inches and over, it being too clumsy a material for small pipes. It is still in universal use for gas mains in streets, as also in factories and warehouses where the larger sizes are required for mains. Cast-iron is too heavy for gas holders, but is used universally for gas condensers and washers and such apparatus, with no sensible leakage. Cast-iron steam boilers are also used to a considerable extent, under high pressure, and so is cast-iron for large steam-pipes, and with no leakage through pores. It is also used almost everywhere for main water-pipes under very heavy pressures. In making contracts for such pipe it is usual to test each piece, before tarring the surface, with a pressure of twenty atmospheres, and to reject all pipes that show porosity. The very small number so rejected in the foundries of our large manufacturers at Camden and elsewhere shows that this porosity is the result of accident rather than the rule. In short, it has seemed to me of more importance in securing the impermeability of our stoves and furnaces to look after the manner rather than the material of their construction, provided the material be suited to the purpose generally and good of its kind. Those forms of furnaces which

are made with a multitude of pieces, and having as many joints, are objectionable for this reason, namely, that whatever be the material, the repeated changes of form under varying temperatures will sooner or later work these joints loose. The furnaces illustrated on page 30, by Figures 140 and 143, are of this class. It is, of course, desirable to close the joints with cement. This soon becomes rigid, whatever its material, and yields to the changes of form that always occur during heating and cooling. Cracks without number are thus opened to act as breathing holes, and, whenever an outward pressure exists, to pollute the air of the house with the escaping gases. Even soapstone is open to this objection, though otherwise as good a material as can be found of equal conducting power. Wrought-iron is the only material that will resist the strain upon its joints, even when new. How long it will remain tight under such a repeated strain is the important question. When used for steam boilers and subjected to repeated heating and cooling, even through much less range of temperature than that to which heating furnaces are subjected, it soon works the joints loose and needs a deal of watching to keep them tight.

EDWARD S. PHILBRICK.

THE "QUEEN ANNE" STYLE.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

Sir, — I wish to be enlightened concerning what is known as the "Queen Anne" style. As I understand it, this style is the outgrowth of an attempted union of certain classical or Renaissance features with the antagonistic Gothic, and it may be broadly defined as partaking in general of the latter style as regards form, and of the former as regards detail. I further understand that many of the characteristic features of the so-called style are modifications of those of the parent styles — due for the most part to influences of climate, and the complexity of requirements that modern buildings are subject to. I have a tolerably clear idea in my own mind as to what is meant by "Queen Anne," but I find that my idea does not coincide with that of many other presumably well-informed people. I find that buildings possessing widely varying characteristics — characteristics, too, which do not come under the above definition, and features which are Gothic if anything — are equally designated by the same term, "Queen Anne." I insist that a style worthy of the name must have some sort of definiteness, and in the absence of any known authority on the subject, I appeal to you for information.

As an instance of this indefiniteness permit me to call your attention to "The Craigs," Mr. Bruce Price, architect, which recently appeared in your journal. Here the form and ruling features, if anything, are purely Gothic or of Gothic origin. A few features of the design are, if anything, "Queen Anne." Is it fair to conclude that "The Craigs" is an example of this so-called style? Several architects have told me that it is; but I am not satisfied that the conclusion is a just one.

Can you throw any light upon this vexed question? F. A. W.

THE DUOMO AT FLORENCE.

NEW YORK, January 31, 1880.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

I beg to take issue with Mr. Jarves in regard to the completing (*sic*) front of Florence Duomo.

So far from its being "very satisfactory and extremely beautiful; a picturesque, brilliant, delicately sculptured front," it is, as you very justly described the first design, "bald, mechanical, and to most critics (and all artists) unsatisfactory."

It is only better than the usual Italian restorations in that it does not destroy existing work, and is so much worse than a restoration in that it has not the lines of the old design to fall back upon.

Very respectfully, STANFORD WHITE.

ANOTHER COMPETITION.

DENVER, COL., January 24, 1880.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

Dear Sir, — In order that the architectural brotherhood may not lose the opportunity which the inclosed "notice" will afford them to display their skill in designing, I should like to have you give the same a place in your valuable journal at the earliest opportunity.

If that as a text will enable you to give us a chapter, even a short one, that will throw light into this dark corner of the earth, upon what should be the fair and proper valuation of our profession by the people, it may cheer our drooping hopes and encourage us to still persevere in our efforts to do good to our fellow-men.

Yours respectfully, J.

NOTICE is hereby given that the Board of County Commissioners of Arapahoe County will, on Monday, February 23, 1880, at 10 A. M., receive and examine plans and sketches for the proposed court-house in Denver. The sketches must include basement and floor plans, geometrical drawings of the different fronts, and a perspective view. Architects submitting plans must describe the building and give detailed estimate of cost; and must also state the price for which they will prepare complete working plans and specifications without superintendence. Full information can be obtained by application to the County Clerk. The Board reserves the right to reject any and all plans and sketches.

[We do not know that we have anything to add to what we have

said before on this subject. The remedy lies with architects, so far as we can see. When they refuse, like our correspondent, to respond to such invitations, people will cease to issue them. Till then it will be difficult to prevent the mischief which the hauntings of competitions do their profession, unless they can be shown to be inferior or untrustworthy practitioners. In respect to this we are reminded of a remark ascribed to a noted politician. "I don't say that everybody in the — party is a scallawag, but I do say that all the scallawags are in the — party." — Eds. AMERICAN ARCHITECT.]

PUBLICATIONS RECEIVED.

REPORT OF PROCEEDINGS OF THE BOARD OF STATE HOUSE COMMISSIONERS for Quarter ending December 31, 1879, to the Governor of Indiana.

A DIGEST OF CASES Relating to the Construction of Buildings, the Liability of Architects, Surveyors, and Builders, in Relation thereto, with Notes; and an Appendix of Forms of Pleadings, Building Agreements and Leases, and Conditions of Contracts. By Edward Stanley Roscoe, Barrister-at-Law, Honorary Associate of the Royal Institute of British Architects. London: Reeves & Turner. 1879.

NOTES AND CLIPPINGS.

THE HUDSON RIVER TUNNEL. — The *Engineering News* says that in consequence of certain newspaper reports of a sensational style going the rounds, it has obtained the following information regarding the progress thus far made in the construction of the Hudson River Tunnel, which is reliable. A shaft 30 feet in diameter has been sunk in Jersey City, 80 feet west of the Hudson River, to a depth of 55 feet below mean high water. A horizontal air lock has been placed in position, penetrating the side of the shaft, and the necessary machinery for compressing air has been provided and is now in good working order. To ascertain as early as possible the effect of the air on the mud, the experiment was tried of driving a heading from the shaft, instead of commencing the tunnel in an open cut. The opening was made 25 feet below high water, the roof consisting of mud 10 feet in depth, underlying loose ash filling 18 feet in depth, the size of the excavation being 15 feet by 6 feet by 4 feet, and the air pressure applied amounting to 12 pounds per square inch. This pressure was kept on four days, during which time no air escaped through the mud. At the end of the second day the surface of the mud which had been exposed to the air pressure became dry and began to crumble and crack open in places, and at the end of the fourth day these cracks had extended sufficiently through the mud to allow the air to commence to escape. Thereupon, the sides and roof of the opening began to give way, and twelve hours later the whole had fallen in. The loose filling above was then removed to a depth of 9 feet below high water, the bottom of the trench covered with canvas and timber, and the loose filling replaced. A new heading is now being driven in such a manner as not to allow any given surface of the mud to be exposed to air pressure for more than twenty-four hours.

THE RIGHT TO BURIED STATUES. — The *Pall Mall Gazette*, in a recent issue, says: The Court of Appeal at Rome has just pronounced its decision in a case at once curious in its history and notable for the position of the parties interested in it. These are her Majesty Donna Maria Cristina de Bourbon, Empress of Brazil, with her husband, his Majesty the Emperor of Brazil, and Donna Isabella, Countess d'Eu, Princess Imperial of Brazil, and the Count d'Eu, plaintiffs, against the Marchese Ferraioli, defendant. The subject of dispute is a property of the Bourbon family at Isola Farnese, near the ancient Veii, which the Ferraioli held in lease as from the Empress of Brazil. On this land was a charge, which by recent laws the tenant can claim to redeem, and thus acquire a right to the ground. The proprietors consented, but with the reservation that they could make excavations or claim any statues or antiques found on the property. This reservation was an important one; for several valuable discoveries have been made in the neighborhood, among others one of twenty-four Ionic columns; and the Ferraioli refused to admit its validity. In the mean while a bust of Antinous was found actually on the property — in fact, it was turned up by a plough; and the proprietors claimed it, while the Ferraioli refused to give it up. The Bourbons brought an action against their tenants for delivery of the bust, and the Ferraioli cited their landlords to fulfil the contract without conditions. The judgment pronounced was substantially in favor of the Bourbons; it being decided that the right of excavation constituted a value above the annual charge on the land, and that the bust was the property of the landlords, under the agreement.

RESPONSIBILITY ATTACHING TO THE QUEBEC BUILDER. — The *Northwestern Lumberman* says that according to the laws of the Province of Quebec, a builder is held responsible for the giving way of any portion of the structure he has erected, arising from any causes which he could have prevented, and this responsibility attaches to him for ten years after the edifice is completed. Not even if he shows that he followed the plans of the architect, and that the strength was all that was asked by those plans; not even if he protested against the sufficiency of the specifications by a legal and formal process; if he has reason to suspect a weakness of any part, and goes on with the building, he is for ten years held responsible for any consequences which may result. It seems hard, but we are not sure but that such a law would be beneficial in this country, and would result in giving us safer and better proportioned buildings, and prove a safeguard against a not infrequent class of accidents.

A TREE HOUSED. — A large elm tree stood on the spot where a man at Lewiston, N. Y., decided to build a residence. He did not cut it down, but built around it. The odd sight is presented of a tree-top growing out of the roof of a handsome brick house. This, by the way, is a Japanese fashion.

HEAVY WEATHER IN PARIS. — During the late heavy weather in Paris it was found necessary to close the galleries of the Louvre for a time, as the whole force of *gardiens* had to be employed in clearing from snow and ice the roofs and immense gallery lights.

THE KREMLIN AT MOSCOW. — The Kremlin, the citadel of Moscow, is about two miles in circumference. It is walled all round, and is crowded with palaces, churches, monasteries, museums, towers and domes, steeples, arsenals, and public and private buildings, all representing modern European and Tartar architecture blended in the most appalling but picturesque confusion. It is entered by five gates, the most important of which are the "Redeemer's Gate" and the "St. Nicholas Gate," about which these stories are told. At the time of Napoleon's occupation of Moscow the Kremlin escaped destruction by the fire which swept away the whole city of palaces and hovels. Over the "Redeemer's Gate" hangs a picture of Christ, which Napoleon ordered to be taken down. Every ladder which was placed against the gate broke in two pieces. He gave orders to batter down the wall to secure the prize, but the powder would not ignite. A fire was built under the cannon, but it exploded at the breach and killed numberless artillerymen. Near the "St. Nicholas Gate" Napoleon's powder train exploded, completely destroying many fine buildings in the Kremlin and splitting the tower up to a few feet of the saint's picture, but not even cracking the glass which covered it. The Kremlin was a citadel, inclosed by walls of oak, as far back as history tells. In 1367 Demetrius, of the Don, replaced the wooden walls with stone, and in 1485 they were again rebuilt, very much as they are to-day. The Kremlin itself was destroyed by fire in 1737. The damage done by the French in 1812 has been repaired, and the place now contains some of the most picturesque architecture to be seen in Russia. — *Exchange*.

A LARGE GAS-HOLDER. — Messrs. Ashmore & White, of Stockton-on-Tees, England, have just secured the contract for the erection of what will be the largest gas-holder in the world. It has been designed by Mr. George Livesey, for the South Metropolitan Gas Company. It is of the kind known as treble lift. The inner vessel is 208 feet diameter by 53 feet 6 inches deep in the sides; the middle vessel is 211 feet diameter by 53 feet 3 inches deep; and the outer vessel 214 feet diameter by 53 feet deep. It will thus be seen that when full, the top curb of this holder will be approximately 160 feet high above the water tank line. The cubic capacity of the vessel will be 5,000,000 feet. The holder when at work will be retained in its position by means of 24 wrought-iron stanchions, constructed of plate, bar, and angle iron, tapering from 28 feet wide at the base to 22 feet at the top, and 165 feet high, or thereabouts. These are connected laterally by a series of strong horizontal struts or girders of $\frac{1}{2}$ section, and by diagonal braces of flat iron, increasing in strength from the top downwards. What a contrast, says the *Engineer*, we have here between modern gas engineering and the time, within the memory of many men, when a London gas company kept a few thousand feet stored in balloons for their customers; while the Chartered Gas Company was once so hard up for a gas holder that it purchased a second hand brewer's vat and used it for that purpose.

DRAINAGE OF LONDON HOSPITALS. — The authorities of one of the largest hospitals in London lately took measures to ventilate all the drains and sewers in connection with their institution. Up to the time these alterations were made pyæmia and erysipelas had almost driven the medical staff to despair. When the whole of the ventilation was completed, and as soon as the pressure was removed from the traps of the closets and lavatories, no fresh cases were found to occur. For months the hospital wards were free from both erysipelas and pyæmia. Suddenly, however, there was a fresh outbreak of these diseases, but it was noticed that the epidemic was confined to one of the surgical wards, built apart from the main building, on the pavilion plan, and having only one story. Close investigation proved that the ventilation pipe in this wing had been stopped up by a careless workman. When this was remedied all traces of the epidemic disappeared.

THE FAIRMOUNT PARK WASHINGTON MONUMENT. — A monument to Washington, to cost \$200,000, and designed by Professor Siemering of Berlin, is to be erected in Fairmount Park, Philadelphia. Only \$45,000 of the sum remains to be subscribed.

JERSEY CITY SCHOOLS. — A number of the Jersey City public school buildings are pronounced unsafe by City Architect Broome. The main defects are small and crooked wooden staircases, rotten floor-beams, and bad ventilation.

MICHELET'S MONUMENT. — M. Mercié, sculptor of the Gloria Victis, and M. Pascal, architect to the National Library and one of the sculptors of the memorial to Henri Regnault at the École des Beaux-Arts, are engaged on Michelet's tomb. The monument consists of three marble steps, superposed so as to receive vases of flowers, two handsome columns rising in the centre and supporting a light architectural coronation, and enclosing a marble slab on which the figure of Michelet appears in high relief. He is seen in a recumbent position, and before him stands a symbolical statue of Truth, writing at his dictation. In front of the group is a fountain surrounded right and left by plants.

THE BELFORT LION. — The lion of Belfort is not carved out of the stone, like that at Lucerne, but is supported, in relief, on a platform constructed for the purpose against the rock. Its material is the mineral known as Vosges sandstone, whose reddish tint seems less adapted for works of sculpture than the white color of the Jurassic limestone; the blocks of which it is composed are put together and united by cement and this mode of adjustment has necessarily greatly augmented the difficulty of the task.

THE NEW BRUNSWICK LEGISLATIVE BUILDINGS. — The prizes for plans for new legislative buildings at Fredericton, N. B., have been awarded as follows: 1st prize (\$500), J. C. Dumareque, St. John; 2d (\$300), McKean & Fairweather, St. John; 3d (\$100), Brown & Allison, St. John.

BUILDING INTELLIGENCE.

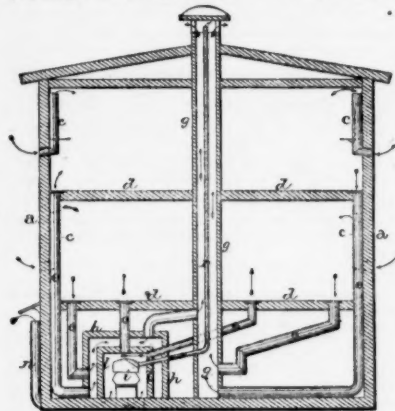
[Reported for the American Architect and Building News.]

[Although a large portion of the building intelligence is provided by their regular correspondents, the editor greatly desires 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.]

225,006. HOUSE VENTILATION. — Thomas B. Pierson and Oswald J. Burnett, Morristown, N. J. The invention consists in supplying each room with fresh air through the side of the building, discharging it into the room at or near the ceiling, taking off the foul air at the floor, and connecting the pipes which carry off the foul air with a central shaft, through which flows an upward current. A representation of a building, the rooms of which have a fresh-air pipe, entering them through the side of the house above the



floors *d*. The upper ends of these pipes are near the ceiling, so as to discharge the fresh air into the top of the room, and are covered with a wire-gauze, so as to prevent a draught through the room. In the pipes *c* are placed valves, near their lower ends, so that the amount of air can be controlled. Leading from the floor of each room is a foul-air pipe, *c*, which has its lower end connected either with the shaft *a* or an outer jacket, *b*, surrounding the furnace *i*. This furnace is inclosed in the usual jacket *l*. Fresh air is supplied to it through the pipe *n*, from the outside of the building, and after it is heated it passes to the different rooms through the hot-air pipes *o*. The products of combustion from the furnace pass off through the smoke-pipe *r*, which extends up through the centre of the shaft, so as to heat the air in the shaft and cause an upward current, the object being to cause an upward draught, and form a partial vacuum in the lower part of the shaft, so as to suck the foul air from the foul-air pipes. The air in the outer jacket, *b*, becomes heated by contact with the inner jacket, *l*, and thus an upward draught is started through it toward the shaft, and this draught causes suction enough to draw the foul air from the rooms above. Thus, while the furnace draws the foul air from the rooms above on one side, the shaft draws it down from the rooms on the other side of the house.

223,796. WEATHER STRIP. — William J. Anderson, Hillsdale, Io.
223,802. SHRAVE. — Ellis D. Draper, Norwood, Mass.
223,815. MANUFACTURE OF CEMENT AND ARTIFICIAL STONE. — Frederick Radmore, Lower Norwood, England.
223,819. MITERING MACHINE. — Theodor Schreppe, San Francisco, Cal.
223,826. FLUSH-TANK. — George E. Waring, Jr., Newport, R. I.
223,835. PIPE-COUPLING. — David Boyle, Chicago, Ill.
223,836. KEY-HOLD GUARD. — Franz Canis, Hamburg, Germany.
223,840. TUBE-EXPANDER. — Henry H. Collins, Pittsburgh, Penn.
223,849. SOLDERING-IRON. — John J. Henry, Baltimore, Md.
223,851. WOOD-PLANING MACHINE. — Lucius P. Hoyt, Aurora, Ill.
223,861. STOVE. — Albert J. Redway, Avondale, O.
223,869. CRAYON COMPOUND. — Nathan Ullman and Mark D. Stiles, New York, N. Y.
223,878. CURTAIN-FIXTURE. — Malachi Brown, East Saginaw, Mich.
223,888. ROCK-DRILL. — John J. Cranston, Newcastle-upon-Tyne, England.
223,893. EXTENSION CHANDELIER. — Charles Deaves, New York, N. Y.
223,895. DISTEMPER PAINT. — Christopher G. Dodge, Jr., New York, N. Y.
223,911. WATER-HEATER. — William R. Hindale, Garden City, N. Y.
223,925. COMPRESSED-AIR WATER-ELEVATOR. — Thomas B. Kenting and Lefe W. Clarke.
223,937. HINGE FOR AWNING-BLINDS. — Tom O. Memery, Key West, Fla.
223,941. DOOR-HANGER. — Alexander M. Montee, Kansas City, Mo.
223,942. LUMBER-TRIMMING MACHINE. — Peter Musser, Muscatine, Io.
223,945. SOLDERING-TOOL. — Delos Palmer, Chicago, Ill.
223,951. HOT-WATER RESERVOIR. — Delos E. Rice, Detroit, Mich.
223,964. BAND SAWING MACHINE. — Garritt M. Van Riper, Bodie, Cal.
9,057. PILE-DRIVER. — (Reissue.) Jacob Hay, Whistler, Ala.

SUMMARY OF THE WEEK.

Baltimore.

BUILDING PERMITS. — The following building permits have been issued since our last report: —
Mrs. R. W. Armstrong, three-story brick building, 128 Lexington St., near Park St.
Mrs. E. H. Woodward, three-story brick building, 126 Lexington St.
Messrs. Becker & Bros., three-story brick building on Frederick St., bet Fayette and Gay Sts.

Mrs. Mary Summers, three-story brick building, 142 and 144 Camden St.
Mrs. Catherine Eppler, warehouse on Conway St.
Mr. C. Bernhardt, two-story brick building, 272 Cross St.

Mr. Wm. Roberts, two-story brick building, 125 Lexington St.
WAREHOUSES. — Messrs. Wm. T. Markland & Bro. (builders) are building a large fire-proof warehouse on the corner of Baltimore and Howard Streets, for Henry White Esq., 30 feet front on Baltimore Street and 172 feet on Howard Street, five stories high, running back to German Street, to cost \$60,000; Messrs. Dixon & Carson, architects.

Mr. C. E. Cassell, architect, is preparing drawings for two new warehouses for T. M. Gaither, Esq., 45 by 120 feet, six stories high, iron fronts; will cost \$25,000; to be built on Baltimore Street, near Hanover Street.
Messrs. Hamburger Bros., Benj. Burgender, Louis Rosenberg, William T. Dixon & Bro., and Francis White are putting up five very large warehouses on Sharp Street, near Lombard Street, covering a space 125 feet front by 198 feet deep, five stories high, iron fronts, cost \$125,000; Dixon & Carson, architects.

U. S. MARINE HOSPITAL. — Dr. Chas. B. Goldsborough, of the United States Marine Hospital Service, called on Mayor Latrobe, Thursday, January 29, and requested him to sign a petition to Congress asking for the establishment of a United States Marine Hospital at Baltimore. The proposed hospital will cost \$150,000.

Boston.

BUILDING PERMITS. — Since our last report the building permits granted are as follows: —

Brick. — 82 Middlesex St., Ward 16, for B. J. Connelley, 1 dwell., 27' x 42'; three stories; T. Connelley, builder.

Wood. — Clay Ave., Ward 24, 1 stable, 24' x 33'; F. P. Nichols, builder and owner.

Milton Ave., Ward 24, for Devereaux & Meserve, 1 stable, 20' x 24'; J. B. & J. W. Kewer, builders.

PUBLIC LIBRARY. — The Committee on Public Library has voted to report an order authorizing the mayor to petition the Legislature to set apart a section of land owned by the Commonwealth in the vicinity of the Old South Church, on which a public library for the city of Boston is to be erected. It is not proposed to take measures, if the request is granted, for the immediate erection of a new building, but to obtain possession of land which can be used when a new building is absolutely required.

Brooklyn.

BUILDING PERMITS. — Montrose Ave., 1 two-story frame factory, 30' x 25'; owner, Barbara Grunfelder, 237 Montrose Ave.; builder, Bernard Grunfelder.

Eighteenth St., 1 two-story frame dwell., 18' 9" x 34'; owner, John Mahony, 118 Twelfth St.

Bushwick Boulevard, cor. Johnson Ave., 1 three-story frame dwell., 25' x 52'; owner, M. Levy; architect, H. Engelhardt; builder, Michael Metzen.

Nostrand Ave., 5 two-story frame dwell., 17' 10" x 42' 6"; owner, E. J. Buchenberger, 95 Pulaski St.; architect, A. W. Dickie.

Bond St., cor. Third St., 1 one-story frame box factory, 35' x 90'; owner, R. W. Adams; builder, Peter Donnan.

Thirty-ninth St., 2 two-story frame dwell., 20' x 35'; owners, Stafford & Doyle; masons, Fitzgerald & Sullivan; carpenter, H. Stafford.

GOVERNMENT BUILDING. — A unanimous report has been made to the House of Representatives by the Committee on Public Buildings and Grounds, in favor of Mr. Bliss's bill, appropriating \$90,000 for the erection of a government building in this city. This has been indorsed by the Secretary of the Treasury and the Supervising Architect.

Buffalo.

HOTEL. — It is reported that a new hotel of magnificent proportions is to be built by a stock company on Exchange Street, on the land east of the Washington Block. It is proposed to extend Ellicott Street through from Seneca Street to Exchange.

HOUSES. — Mr. M. E. Beebe, architect, is building three houses on Delaware Avenue, at an average cost of \$15,000 each; a house on the same avenue for Mr. Wilson Howard, cost \$20,000; and several others.

Messrs. Holmes & Little, architects, are to build, for Mr. H. P. French, a house on Delaware Avenue, which will cost \$7,000.

Mr. George J. Metzger, architect, is preparing drawings for a house for Mr. J. B. Schoellkopf, on Delaware Avenue; cost, about \$35,000.

STORES. — Mr. F. W. Caulkins, architect, is to build a large building on Main Street, north of Swan, at a cost of \$65,000.

Mr. White intends to build a large block of stores at the corner of Erie and Main Streets, from designs by Messrs. Rumrill & Rupp, architects.

Chicago.

BUILDING PERMITS. — Fairfield Ave., No. 94, two-story dwell., for F. Trapp; cost, \$2,500.

Eighteenth St., two-story dwell., for M. Tapa; cost, \$2,000.

West Water St., Nos. 10 and 12, elevator, for N. E. Platt; cost, \$8,500.

Eden Ave., cor. of Hurlburt, two-story dwell., for J. R. Lippa; cost, \$5,000.

Haledale and E Sts., two-story store and dwell., for P. McGillen; cost, \$3,500.

Monroe St., two-story dwell., for Dr. A. B. Strong; cost, \$4,000.

Carpenter St., two-story store and dwell., for V. Kopetsky; cost, \$2,200.

Larrabee and Hawthorne Sts., two-story warehouse, for H. H. Shufeldt & Co.; cost, \$5,000.

Milwaukee Ave., Nos. 350 and 352, three-story store and warehouse, for H. Horan; cost, \$8,500.

Milwaukee Ave., Nos. 354 and 356, three-story store and dwell., for M. Mitchell; cost, \$9,000.

Darborn Ave., No. 137, two-story dwell., for N. M. Freer; cost, \$6,000.

Thirtieth St., No. 169, two-story dwell., for John Covert; cost, \$3,000.

Charles St., one-story freight-house, for the Chicago & Alton Railroad Company, 340' x 28'; cost, \$8,000.

Huron St., No. 221, three-story dwell., for D. Danielson; cost, \$5,000.

Hinman and Loomis Sts., one-story dry-kiln, for Soper & Pond; cost, \$7,000.

Sigel St., No. 104, two-story dwell., for John Matthews; cost, \$2,800.

Indiana Ave., two-story dwell., for Dr. Hale; cost, \$4,000.

Twenty-sixth St., near Stewart Ave., two-story factory, for J. Q. Wells; cost, \$2,000.

Maya Place, near Throop, two-story dwell., for Joseph Kleina; cost, \$2,200.

SCHOOL-HOUSES. — The Building Committee of the School Board has been authorized to build schools opposite Wicker Park and on the corner of Douglas and Waller

Streets, and to advertise for a site east of Halsted Street and south of Archer Avenue.

Cincinnati.

DEPOT. — The Little Miami and Louisville Short Line Railroad Companies will unite in building a huge new passenger depot at the southeast corner of Pearl and Butler Streets. It is understood that work upon the structure will begin at once.

Indianapolis.

CITY-HALL. — The City Council, at its last meeting, appropriated \$200 to advertise for plans for a new city-hall.

LIBRARY. — The Library Committee is still considering the propositions submitted by various capitalists as to furnishing a building site for the new city library.

FREIGHT-HOUSE. — The L. D. & S. R. R., the twelfth road running to the Indianapolis Union Depot, will soon begin to build a large freight-house. A number of new stations along the line will be built also.

STORES. — Mr. R. P. Daggett, architect, is building a block of stores for Mr. Robinson, at a cost of \$15,000.

New York.

BUILDING PERMITS. — One Hundred and Twenty-seventh St., 6 three-story brick (brown-stone front) dwell., 16' 8" x 50'; cost, each, \$6,500; owner, S. Stevens, 21 Beekman Place; architect, Wm. Josel.

Allen St., No. 85, 1 three-story brick tenement, with stores on first floor, 25' x 54'; cost, \$6,000; owner, Estate of Mrs. Maria C. Cadwallader; architect, Julius Boeckell.

Third Ave., No. 1020, 1 five-story brick tenement, with store on first floor, 25' x 68'; cost, \$12,000; owner, Wm. Ahlborn, 1015 Third Ave.; architect, Julius Boeckell.

Sixty-eighth St., cor. Park Ave., 1 four-story brick dwell., 33' x 67'; cost, \$40,000; owner, A. H. Stevens, 14 East Twenty-ninth St.; architect, George E. Harney; mason, John J. Tucker; carpenter, Bartlett Smith.

Seventh St., Nos. 25 and 27, 2 five-story brick tenements, 26' x 65'; cost, each, \$11,000; owner, Z. W. Miller, 41 Seventh St.; architect, Jobst Hoffman.

Ten St., No. 103 E., 1 five-story brick (brown-stone front) apartment-house, 32' x 84' 6"; cost, \$18,000; owners, Dugro & Baegener, Staats Zeitung Building, Tryon Row; architect, F. W. Kient.

One Hundred and Sixteenth St., Nos. 206 and 208 E., 2 three-story brick (brown-stone front) dwell., cost, each, \$15,000; owner, Thomas F. Treacy, One Hundred and Thirty-fifth St. and Sixth Ave.; architect, Charles W. Romeyn; mason, James A. Frame; carpenter, Samuel Wright.

Seventy-ninth St., No. 243 E., 1 four-story and basement brick (brown-stone front) dwell., 11' 8" x 26'; cost, \$5,000; owner, A. M. Heins; architect, J. D. Heins.

Thirty-first St., Nos. 128 and 130 W., 1 two-story (brick and iron front) building (hotel and music-hall), 50 feet front and 131' 3" and 142' 2" deep; cost, \$20,000; owner, D. McQueen, 23 West Fourteenth St.; architect, Wm. E. Townley, Jr.; builder, D. McQueen.

Fifty-second St., Nos. 342 and 344 E., 2 five-story brick (brown-stone front) flats, each 20' x 64'; cost, \$12,000; owner, Dennis Lounie, 175 East Seventieth St.

Fifty-second St., No. 346 E., 1 five-story brick (brown-stone front) flat, 30' x 64' 8"; cost, \$15,000; owner, Dennis Lounie, 175 East Seventieth St.

Eleventh Ave., 1 four-story brick store, 24' 8" x 65'; cost, \$6,000; owner, John McClave.

Jane St., cor. Thirteenth Ave., 1 four-story brick factory, 70' 5" x 80'; cost, \$7,000; owners, Mallon & Rourke, cor. Jane St. and Thirteenth Ave.; architect, George J. Carey.

Eighty-first St., 2 four-story brick (brown-stone front) apartment-houses, 25' 5" x 62'; cost, each, \$12,000; owner, Otto W. Loeffler, 113 East Seventy-seventh St.; architect, John C. Burne; mason, James A. Frame, 107 East Seventieth St.

Eighty-fifth St., 1 four-story brick (brown-stone front) apartment-house, 25' x 64'; cost, \$12,500; owner, Otto W. Loeffler; architect, John C. Burne; mason, James A. Frame.

One Hundred and Third St., cor. Lexington Ave., 1 four-story brick (brown-stone front) apartment-house, with store on first floor, 25' 11" x 62'; cost, \$14,000; owners, Christy & Walker, 101 East One Hundred and Fifth St.; architect, John C. Burne.

Lexington Ave., cor. One Hundred and Fourth St., 1 four-story brick (brown-stone front) apartment-house, with store on first floor, 25' 11" x 62'; cost, \$13,500; owners, Christy & Walker; architect, John C. Burne.

Eighty-ninth St., 1 five-story brick tenement, 25' x 55'; cost, \$11,000; owner and builder, Morris R. Williams, 602 East Fifteenth St.; architect, Charles Wright.

One Hundred and Seventeenth St., 4 four-story brick apartment-houses, 18' 9" x 58'; cost, each, \$6,000; owner, Maria J. Moore, 311 East One Hundred and Thirtieth St.; builder, Hiram Moore.

ALTERATIONS. — Third Ave., No. 354, four-story brick building, an additional story to be built, new store front and internal alterations; cost, \$25,000; owner, John Jacob Astor; architect, Thomas Sent; mason, Marc Eldlitz; carpenter, John Downey.

Twenty-sixth St., No. 158, two-story brick building, to have three stories added and internal alterations; cost, \$20,000; owner, John Jacob Astor; architect, Thomas Sent; mason, Marc Eldlitz; carpenter, John Downey.

Water St., Nos. 506 and 508, 2 three-story and attic brick stores and dwell., new fronts to be built and internal alterations; cost, \$1,600; owner, Wm. Brasch, 506 Water St.; mason, Henry Hollwedel; carpenter, L. Antonius.

Broadway, No. 366, five-story brick store and offices, damage by fire to be repaired; cost, \$19,500; owner, Robert W. Taiter, 12 East Tenth St.; builders, Moore & Wilson.

Fulton St., cor. of Washington St., four-story brick store, new front built and first floor lowered; cost, \$1,575; owner, H. & J. Blendeman, cor. Liberty and West Sts.; builder, J. E. Walker.

Second Ave., Nos. 1654 and 1656, 2 four-story brick tenements, four-story brick extension, 7' 8" x 9'; cost, \$2,500; owner, Henry Hines, No. 1658 Second Ave.; architect, John Cook, 413 East Eleventh St.; builders, Cook & Higgins.

Waverly Place, cor. Greene St., three-story brick manufactory, to have a fourth story added; cost, \$2,000; owner, Cyrus Clark, Riverside Ave.; architect, John B. Snook.

Fulton St., cor. Dutch, four-story brick store and workshop, a fourth story to be added; cost, \$3,000; agents, E. A. Cruikshank & Co., 68 Broadway; architect, Henry Dudley; builder, Seth W. Howard.

Chambers St., No. 25, 1 five-story brick office building and dwell., two additional stories to be built; cost, \$1,000; owner, Myer Flinn, 339 Broadway; architect, J. F. Duckworth.

Twenty-fourth St., No. 6 W., two-story brick building, new front to be built and interior to be fitted up for box office of theatre; cost, \$2,500; owner, Phillips Phoenix; architects, Kimball & Wiseloff; mason, Richard Deaves; carpenter, Smith & Crane.

Eighty-seventh St., three-story frame dwell., a two-story brick extension, 16' 8" x 12', to be built on rear; cost,

\$1,200; owner, J. K. Dalton, 162 East Eighty-seventh St.; builder, B. Oakley.

The buildings 37 and 39 West Sixteenth Street are to be altered into flats from designs of Mr. Jos. M. Dunn. Nos. 25 and 27 Seventh Street are to be remodelled as an apartment-house, by direction of Mr. J. W. Miller. Mr. J. Hoffman is the architect.

ASYLUM.—The Hebrew order of the B'nai Brith is considering the question of building an asylum at Yonkers capable of receiving one hundred and fifty aged and infirm Hebrews. The B'nai Brith proposes to use about \$70,000 out of its building fund of \$100,000 for this purpose.

CHURCH.—Seventy thousand dollars were lately subscribed at one meeting of the Madison Avenue Baptist Church, for the purpose of building a new church on Madison Avenue.

FACTORY.—A factory is to be built for Mr. Jno. McClave, 65 by 25 feet, four stories high, on Twenty-second Street and North River. The building will be of brick. Mr. Wm. B. Pettit is the builder.

FULTON MARKET.—The Sinking Fund Commissioners have postponed action, and it still remains doubtful as to whether the market will be rebuilt.

LIBRARY.—The building of the new Mercantile Library is liable to be postponed somewhat, as the old lease has not yet been disposed of.

STORE.—A store, Trenton brick face, six stories high, is to be built at 364 and 390 Broadway, for Geo. E. Ward and Mrs. Mary Bradhurst. Designs have been drawn by Mr. S. D. Hatch.

THE PRESENT SEASON.—Since the 1st of January a marked increase in the applications for building permits is noticed. One hundred and twenty-one new applications have been received by the Department of Buildings since the first of the year, the aggregate of which amounts to \$846,100. Among the most important applications filed are those for a large building on the southwest corner of Broadway and Forty-first Street, the cost of which is to be \$85,000, and a first-class store on Broadway, for Ward & Bradhurst, at a cost of \$75,000.

Philadelphia.

MONTHLY REPORT.—During the month of January 101 building permits were issued by the building inspectors, Messrs. Hancock, Zimmerman, and Bowen. The following statement will indicate the number and character of the buildings for which the permits were issued:—

Additions and alterations, 39; dwellings, two-story, 16; three-story, 6; stores and dwellings, two-story, 2; three-story, 3; back buildings, 6; stables, 9; kitchens, 4; factories, 3; shops, 2; slaughter-houses, 2; wash-house, 1; brewery, 1; shed, 1; office, 1; store, 1; boiler-house, 1; bath, 1; store-house, 1; and dye-house, 1; total, 101.

ALTERATION.—The building of Townsend, Whelen & Co. is being remodelled with a brown-stone front to the second story, and a two-story back building, 22 by 65 feet; cost, \$8,000; Geo. W. Hewitt, architect; James Erickson, builder.

HOUSES.—Two stone houses, with plaster panels and timber structures, are now building for Jos. Patterson, at Chestnut Hill; cost, about \$14,000; Mr. James Sims, architect.

At the same place Mr. Sims is remodeling the houses of Messrs. Clayton and Townsend; cost, \$5,000.

OFFICE BUILDING.—Competitive designs are now being made for a large building for the Union Insurance Company, at the corner of Third and Walnut Streets. This building will be 50 by 78 feet, brick and marble, four stories high. The cost, with the ground, will be about \$115,000.

STABLE.—Mr. G. G. Way is building, on Eighteenth, below Fairmount Avenue, a large brick stable, 102 by 104 feet, three stories in height; cost, from \$15,000 to \$18,000.

THE PUBLIC BUILDING.—Several parts of this building are now open as public offices. From the late appropriation of \$635,000 the heating apparatus is being perfected and the stone-cutting carried on. Specifications are now being made for the work to be carried on in the coupling spring.

St. Louis.

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

Owners.	Use.	Stories.	Rooms.	Cost.
John Kimpie.	Carriage Factory.	3	7	\$7,000
L. Jones.	Dwelling.	3	10	5,000
Charles Fink.	Turf Exchange.	3	10	5,000
Dr. N. Gohman.	Dwelling.	2	12	3,800
J. S. Gray.	Dwelling.	2	12	3,800
St. Louis Mutual Building Co. No. 3.	Dwellings.	4	33	14,000
J. Morrey.	Dwelling.	2	14	7,000
W. S. Balson.	Dwelling.	2	18	3,000
F. Knottlumper.	Dwelling.	2	8	2,300
Bukmeyer & Beckman.	Dwelling.	2	16	3,000
L. Fusz.	Dwelling.	2	11	10,000
A. Steinwender.	Dwelling.	2	10	5,700

St. Paul, Minn.

STORES.—Dr. Wharton will erect a building for Strong, Hackett & Chapin, on Fourth Street, which is to be four stories high, and 50 by 125 feet. The excavation is now in progress.

Lindeke, Warner & Schurmeier will build a large wholesale dry goods house—probably on the corner of Third and Wacouta Streets.

Mr. John Wann proposes to build several large buildings on his grounds for wholesale trade.

Mr. George Mitsch will build on the northwest corner of Seventh and St. Peter Streets.

Mr. Pfeiffer will build a block adjoining the market-house.

Dr. John Steele will put a block of stores up on the corner of Seventh and Wabasha Streets.

Mr. Sherman will put up a block on the corner of Ninth and Wabasha Streets.

General Notes.

BANGOR, ME.—Bangor is to have a new opera-house. Mr. Eugene M. Hersey has the matter in hand.

BATON ROUGE, LA.—Mr. Robertson's House Bill, providing for building a post-office and revenue offices, has been referred to the Committee on Public Buildings and Grounds.

BEATRICE, NEB.—New elevators, to hold 25,000 bushels, are building here.

BERLIN, ONT.—D. W. Gingrich, of Waterloo, is the architect of the three-story store which is to be built for Mays Breighaupt. It will measure 60 by 80 feet.

BIDDEFORD POOL, ME.—Arthur Starkweather is building a hotel, having a frontage of 135 feet, and two wings each 135 feet long and 34 feet wide. It will be four stories high, with a mansard roof. The house will be completed in season for the summer business.

BRATTLEBORO, VT.—The Methodists have finally purchased the Starr & E-ley lot on Elliott Street, and hope to build a hand-some brick church the present year. A. C. Davenport, Rev. D. E. Miller, J. C. Howe, W. R. Geddes, and A. V. May have been chosen a building committee.

BRYN MAWR, PENN.—Willis G. Hale, architect, Philadelphia, has drawn plans for a house for Henry Whelen. The house will be 61 by 67 feet, gray stone with brick trimmings, three stories in height; cost, \$12,000; Sam. K. Bye, builder.

BURLINGTON, N. J.—Geo. W. Hewitt, architect, of Philadelphia, has drawn plans for the Burlington Savings Institute. It will be of brick and granite, 52 by 65 feet, three stories in height; cost, \$12,000.

CLARKSBURG, W. VA.—The governor and others have petitioned the general government for an appropriation to build a public building here.

DANVILLE, VA.—\$65,000 will probably be appropriated for a public building in this city.

DAYTON, O.—The new brick paint shop at the car works is progressing rapidly. It is a brick building, 150 by 60 feet, and three stories high.

DENVER, CO.—Mr. Hill's Senate Bill to provide for building has been referred to the Committee on Public Buildings and Grounds.

Mr. Emmet Anthony, architect, reports the following:—

Block of small two-story stores for Dr. W. R. Whitehead; cost, \$7,000.

Block of four two-story houses and one store for Atwell Renick, Esq.; cost, \$15,000.

House for Mr. J. B. Vroom; cost, \$6,000.

Fort Benton, Mont. T.—A church is to be built here.

GALVESTON, TEX.—The Committee on Public Buildings and Grounds has before it Mr. Jones's bill for building a custom-house in this city.

GEORGETOWN, COL.—The Cushman Opera-House has been indicted by the grand jury as an unsafe building.

GRAND RAPIDS, MICH.—D. I. Hopkins, architect, has work as follows:—

Dwelling for Don Leathers; cost, \$1,500.

Dwelling for Milan Hibbard; cost, \$3,500.

Dwelling for C. M. Loomis; cost, \$2,000.

Business looks bright for the coming season in all branches of business.

GREENVILLE, S. C.—The Committee on Public Buildings and Grounds is considering Mr. Erving's bill for building a post-office.

JOLIET, ILL.—The Charities Committee of the Board of Supervisors has accepted plans and specifications for a new poor-house, which is to cost \$4,800. H. Boehme is the architect.

KNIGHTSTOWN, IND.—There is talk of building the much-needed new depot.

LA CROSSE, WIS.—The Committee on Public Buildings and Grounds is considering the question of a public building for this city.

LEBANON, O.—Mr. Beirs, architect, is to alter the old court-house.

LITTLE ROCK, ARK.—The Committee on Appropriations has before it Mr. Cravey's House Bill for continuing the construction of the court-house and post-office.

LOUISVILLE, KY.—Mr. Willis's bill to provide for the erection of a public building in this city is before the Committee on Public Buildings and Grounds.

LOWELL, MASS.—The Middlesex Manufacturing Company is to build a main mill five stories high, 175 by 55 feet, and running at right angles with the same a wing of two stories, having a floor 80 by 55 feet.

MUSKEGON, MICH.—W. J. Lawton has broken ground for the erection, on River Street, east of the bridge, of a two-story brick building, 80 by 60 feet.

MILWAUKEE, WIS.—There are rumors of glass works that are to be built outside the city limits, on the South Side, with a capital of \$300,000.

MINNEAPOLIS, MINN.—A new church is to be built here, of a very handsome brown sandstone from the region of Duluth.

MONSON, MASS.—A new Baptist church is talked of.

NEW RICHMOND, O.—A new building is to replace the old Peyton House.

NEWPORT, R. I.—The plans for the new engine-house for No. 2 company, on Bridge Street, have been prepared, and the special committee has decided to recommend those drawn by Mr. Dudley Newton.

The house for F. B. Porter, Esq., on Bellevue Avenue, Messrs. Potter & Robertson, of New York, architects, an illustration of which was published in our issue of January 24, is to cost about \$18,000.

OAKDALE, N.Y.—A move is on foot to build a Methodist church here.

OAKLAND, CAL.—The corner-stone of a Masonic Temple was laid Saturday, January 10. The new temple, it is represented, will cost about \$60,000.

OLD ORCHARD, ME.—A mammoth hotel is to be built at Old Orchard Beach. The work on it will shortly be commenced.

PITTSBURGH, PENN.—J. T. & A. H. Hamilton are building a glass factory at the corner of Twenty-sixth Street and A. V. R. B. The main building will be sixty-five feet square.

RACINE, WIS.—The work of rebuilding the Mitchell, Lewis & Co. wagon works is rapidly progressing.

RADNOR, PENN.—A new school-house will be built near Tyson Lewis's mills, next spring.

ROCHESTER, N. Y.—The House Committee on Public Buildings and Grounds has reported favorably on a bill to appropriate \$300,000 for a public building in this city.

SAN FRANCISCO, CAL.—Mr. Davis's bill to provide for the building of a post-office building has been referred to the Committee on Public Buildings and Grounds.

SOQUEL, CAL.—A new paper-mill is being built here.

SYRACUSE, N. Y.—Mr. Hiseock's House Bill to secure an appropriation for building a United States court-house and revenue offices has been referred to the Committee on Public Buildings and Grounds.

TARRYTOWN, N. Y.—Messrs. Lamb & Wheeler, of New York, are the architects of a house to be built for Mr. Brown, of stone, with brick finish, in old Colonial style; gables with frame-work; cost, about \$25,000.

TOLEDO, O.—The bill appropriating \$250,000 for a public building in this city has been approved by the House Committee on Public Buildings and Grounds.

TOPEKA, KAN.—Sells Brothers have bought lots here, on which they will build an opera-house to cost \$30,000.

WASHINGTON, CONN.—Messrs. Potter & Robertson, of New York, are the architects for the house now building for Mr. Vaningen. It is a frame dwelling, and will cost about \$15,000.

WATERLOO, ONT.—The Ontario Mutual Life Assurance is building a three-story brick and stone office building from the designs of D. W. Gingrich, architect; cost, \$7,000.

Bids and Contracts.

AURORA, IND.—The bids for building our new school-house have been opened. The amounts ranged from \$23,500 to \$28,000. Frank Trester, of Chicago, had the lowest bid.

AVONDALE, O.—Messrs. Kemme & Rosentel, of Cincinnati, are the contractors for the large new house to be built on the Reading Road, near Avondale.

LOCK HAVEN, PENN.—Messrs. Kreamer & Mann have closed a contract to manufacture 6,000,000 feet of yellow and white pine boards by the 1st of August.

WASHINGTON, D. C.—The contract for building the new school-house on Massachusetts Avenue, according to the revised plan, has been awarded to Mr. John H. Howlett, for \$34,335.

INDEX OF CURRENT WORK,

Giving information concerning important buildings now unfinished.

[Architects and Builders are requested to aid the editors in making the information in this department full and exact. Notice of the completion of a building is particularly desired.]

Baltimore.

RAILROAD OFFICE.—Office for Baltimore & Ohio R. R. E. F. Baldwin, architect. Cost, \$400,000. 214 x

Boston.

STORES.—Liberty Building. W. G. Preston, architect. Cost, \$200,000.

Brooklyn.

HOSPITAL.—Eastern District Dispensary and Hospital. C. C. Buck, architect. Cost, \$85,000. 204 y

HOSPITAL.—Hospital of St. Mary. Mr. P. C. Keely, architect. Cost, \$200,000.

Chicago.

HOTEL.—Hotel. T. V. Wadskier, architect. Cost, \$30,000. 215 a

ASYLUM.—Home for the Aged. Cost, \$25,000.

New York.

STORE.—Store for Arnold, Constable & Co. W. Schickel, architect. Cost, \$200,000. 210 x

BARGE OFFICE.—Mr. J. G. Hill, Supervising Architect. Cost, \$145,000.

CHURCH.—St. Paul's (R. C.). Mr. J. O'Rourke, architect, Newark, N. J. Cost, \$500,000.

OFFICE BUILDING.—G. E. Harney, architect. Cost, \$200,000.

COLLEGE.—Addition to Columbia College. C. C. Haight, architect. Cost, \$250,000.

DWELLINGS.—House for Cornelius Vanderbilt. G. B. Post, architect. Cost, \$250,000. — Houses for W. H. Vanderbilt, J. B. Snook and C. E. Atwood, architects. Cost, \$400,000 and \$300,000.

CLUB-HOUSE.—Union League Club-House. Messrs. Peabody & Stearns, architects, Boston. Cost, \$250,000.

WAREHOUSE.—Building for Robbins & Appleton. S. D. Hatch, architect. Cost, \$120,000.

APARTMENT-HOUSES.—"The Benedict." McKim, Mead & Bigelow, architects. Cost, \$90,000. — Apartment-House. J. W. Pearson, architect. Cost, \$85,000.

TENEMENT-HOUSE.—Potter & Robertson, architects. Cost, \$50,000.

ASYLUM.—St. Vincent's Home for Boys. L. J. O'Connor, architect. Cost, \$111,500.

MASONIC TEMPLE.—Thom & Wilson, architects.

IRON STORE.—Edward D. Harris, architect. Cost, \$60,000.

OFFICE BUILDING.—Smith Building. G. B. Post, architect. Cost, \$150,000.

STORE.—J. Corcoran, architect. Cost, \$300,000.

Philadelphia.

PUBLIC BUILDINGS.—Mr. J. McArthur, Jr., architect.

CONVENT.—Convent of the Good Shepherd. J. J. Deery, architect. Cost, \$110,000. 215 s

Providence, R. I.

CATHEDRAL.—Mr. P. C. Keely, architect, Brooklyn. Cost, \$350,000.

St. John, N. B.

CHURCH.—Trinity Church. W. T. Thomas, architect, Montreal. Cost, \$65,000.

St. Louis.

CUSTOM HOUSE AND POST OFFICE.—Mr. Jas. G. Hill, Supervising Architect of the Treasury Department.

MUSEUM.—Museum of Fine Arts. Messrs. Peabody & Stearns, architects, Boston. Cost, \$75,000.

HOTEL.—Southern Hotel. Taylor & Barnett, architects. Cost, \$250,000.

STORE.—Dry goods store for Moffet & Chouteau. Taylor & Barnett, architects. Cost, \$200,000.

General.

ALBANY, N. Y.—U. S. Court-House. Mr. J. G. Hill, Supervising Architect. Appropriation, \$305,000.

ATCHISON, KAN.—Union Depot. Cross & Taylor, architects, Kansas City, Mo. Cost, \$87,000.

BURLINGTON, IOWA.—County Court-House. P. E. Hale, architect. Cost, \$100,000.

CHESTER, ILL.—Penitentiary. Bell & Hackney, architects, Springfield. Cost, \$850,000. 214 s

CHESTER, PENN.—Church of St. Michael. E. F. Durang, architect, Philadelphia. Cost, \$60,000.

CLEVELAND, O.—Church. Heard & Smith, architects. Cost, \$40,000.

COHUES, N.Y.—Hotel. Ogden & Wright, architects. Cost, \$50,000.

DAYTON, O.—County Court-House. Mr. L. Beavers, architect. Cost, \$100,000. 213 y

—Presbyterian Church. Wheelock & Clay, architects, Chicago. Cost, \$60,000.

DENVER, COLO.—Stores. W. J. Edbrooke, Chicago, architect. Cost, \$140,000.

DES MOINES, IOWA.—Court-House. P. Hale, architect, Chicago. Cost, \$86,000.

DETROIT, MICH.—The Rotunda. Lloyd & Pierce, architects. Cost, \$160,000.

DORCHESTER, CAN.—Penitentiary. Thomas S. Scott, Ottawa, architect. Cost, \$120,000.

FISHING, N. Y.—Chapel for the Academy of St. Joseph. W. Schickel, architect, New York. Cost, \$45,000.

GARDEN CITY, N. Y.—St. Paul's Cathedral School. Mr. E. D. Harris, architect, New York. Cost, \$250,000.

HARTFORD, CONN.—Courant Office. G. Keller, architect. — House for Cornelius J. Vanderbilt. Cost, \$50,000.

INDIANAPOLIS, IND.—State House. Mr. E. May, architect. Cost, \$2,000,000.

LEBANON, PA.—St. Luke's Church. Henry M. Congdon, architect. Cost, \$70,000.

LINCOLN, NEB.—State Capitol. W. H. Wilcox, Chicago, architect. Cost, \$400,000.

MANSFIELD, O.—Jail. D. W. Gibbs, architect, Toledo, O. Cost, \$50,000.

MERIDIAN, MISS.—Court-House. Moser & Tucker, architects. Cost, \$25,000.

MIDDLETOWN, N. Y.—Homoeopathic Insane Asylum. C. Pfeiffer, architect, New York. Cost, \$125,000.

MILWAUKEE, WIS.—County Insane Asylum. H. C. Koch & Co., architects. Cost, \$135,000. — Chamber of Commerce. E. T. Mix, architect.

NEWPORT, R. I.—Casino. McKim, Mead, & White, architects, New York. Cost, \$70,000. 214 y

NORTH EASTON, MASS.—Hall for Oliver & Osnes A. Ames. Cost, \$40,000. H. H. Richardson, architect, Brookline.

OKLAHOMA, N. B.—Trinity Cathedral. J. F. Stueckert, architect, Philadelphia. Cost, \$50,000.

ORANGE, N. J.—Music Hall. Shilman & Farnsworth, architects, New York.