

THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XII.

Copyright, 1882, JAMES R. OSGOOD & Co.

No. 344.

JULY 29, 1882.

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

CONTENTS.

SUMMARY:—

Some Recent Deaths: Robert Briggs, C. E.; George P. Marsh, Minister to Italy; Joseph A. Hansom, Architect; George S. Somers, Architect.—Progress of the Edison Electric-Light Company in New York.—The Present Building Season in New York.—The Royal Institute of British Architects receives the Snub Direct.—The Propriety of its Infliction.—The Coming Scarcity of Pine.—The Nicaragua Canal. . .	45
THE ENGLISH CATHEDRALS.—IV. . .	47
INDUSTRIAL EDUCATION. . .	49
THE ILLUSTRATIONS:—	
Our Foreign Exchanges.—House.—M. E. Church, Lodi, N. Y. . .	50
BACKWARDNESS IN ARCHITECTURE. . .	51
ARCHITECTURE IN 1882. . .	51
THE PRIMARY COLORS. . .	52
ARCHITECTS' RESPONSIBILITY FOR MYOPIA. . .	53
COMMUNICATIONS:—	
The Recent Building Accident at St. Louis.—An Undecided Competition. . .	53
NOTES AND CLIPPINGS. . .	54

Two deaths of distinguished Americans are reported this week, which will have a sad personal interest for many of our readers. Mr. Robert Briggs of Philadelphia, an engineer of the highest accomplishments and reputation, died Monday afternoon after a long and painful illness. Mr. Briggs was born in Boston, May 18, 1822, and was educated in that city, entering afterwards as a pupil the office of Alexander Parris, an engineer and architect of note in his day. Removing later to Philadelphia, he was employed there and in Washington in many important works, particularly in the extension of the Capitol, under General Meigs, and in the construction of the Washington aqueduct. His taste for experimental science led him to investigate the phenomena involved in ventilation, and he soon became distinguished in this branch of engineering, planning and carrying into execution the scheme of ventilation for the legislative chambers in the Capitol, as well as for many other public and private buildings. For a time he held also the direction of Morris, Tasker and Company's iron-works at Philadelphia, and was subsequently associated with Mr. Henry S. Morris in the Southwork Foundry Enterprise. Of late years his failing health demanded some cessation of his more active employments, and he became widely known as a consulting engineer, and as a writer upon technical subjects. Several of his letters and papers have appeared in this journal, of which he was a kind and constant friend from the first. He was an honorary member of the American Institute of Architects, and a member of various societies of civil and mechanical engineers in this country and in England.

MR. GEORGE PERKINS MARSH, the American Minister to Italy, also died on Monday at the little village of Vallombrosa, in his eighty-second year. We need not say that for nearly two generations the name of Mr. Marsh has been familiar to all who know anything of American letters and scholarship, and since his graduation from college in 1820 his zeal in the cause of learning and science has never failed. In 1842 he was elected to the National House of Representatives from his native state of Vermont, retaining his seat until 1849, when he was commissioned as resident Minister to Constantinople. In 1853 he returned home, and was employed in various important public services until 1861, when he was appointed the first Minister of the United States to the new Kingdom of Italy. This post he held continuously until his death, to the honor both of his native country, whose citizens shared unconsciously the regard in which he was held, and of that to which he was accredited, where his position was that of a beloved and trusted friend alike of Court and people. To him hundreds, and perhaps thousands, of Americans are indebted for kindnesses and courtesies which they will never forget, and throughout Europe as well as the United States his death will be mourned with sincere grief.

Two English architects of distinction have within a few days followed their associates, Street and Scott, to their eternal rest.

Joseph Aloysius Hansom the elder of the two, had completed, in his eightieth year, a life full of success and happiness. Beginning his career as an apprentice to his father, a joiner, when only thirteen years old, his general capacity and taste for design led to his transfer to the office of an architect of ability, under whom he acquired a knowledge not only of his new profession, but of many other matters in which his active mind interested itself. He married early in life, and soon afterward entered into business on his own account, winning almost at the outset the important competition for the Birmingham Town-Hall. Although the Town-Hall Commissioners took the usual advantage of his youth and inexperience, and drove him into bankruptcy before the work was completed, he gained a reputation, and was thenceforth never without employment. In the first few years of poverty after his misadventure with the Birmingham Commissioners he was induced to undertake work not strictly within the scope of his profession, and at the suggestion of friends perfected and patented what he called a "Safety Cab," which was subsequently introduced in London, and has made his name a household word wherever the English language is spoken. In 1842 the idea of founding an illustrated journal for the service of the building trades and professions occurred to him, and on the 31st day of December in that year he issued the first number of the *Builder*. He had not, however, sufficient capital to carry on this enterprise, and soon transferred it to other parties, to devote himself thenceforth wholly to his profession. Much of his work was ecclesiastical, and being himself a devout Catholic, a large part of the modern Romanist churches in England were designed by him or his son, who was for many years his partner. The beautiful church of St. Philip Neri at Arundel is probably familiar to our readers from the drawings published in the English professional journals, and the Convent of Our Lady at Plymouth is in some respects even more admirable. Besides these, the *Builder* enumerates fifty-five other churches executed from his designs, with many secular or semi-ecclesiastical structures.

A DAY or two after Mr. Hansom's decease died Mr. George Somers Clarke also an ecclesiastical architect of great ability. His designs were generally in that massive style first introduced, we believe, by Mr. James Brooks, but were at the same time thoroughly well studied and graceful in a dignified and simple way. In matters relating to his profession he was unusually intelligent and well informed, and few of the younger architects gave promise of greater distinction. With the next English mail we shall undoubtedly receive further details of his career, which although so short has brought him honor enough to satisfy a moderate ambition, and will try to select some of the most interesting particulars for the benefit of the younger readers.

THE Edison Electric-Light Company has so far completed its preparations for actual illumination in its first district in New York that a circular has been sent out, addressed to all owners or lessees of buildings in that district who have had wires for the light put into their rooms, informing them that service connections with the street mains are to be immediately made, and reminding them of the terms of the contract under which the wires were introduced,—that if after trial, the occupants of any building should decide to adopt the electric-light permanently, he must pay the cost of wiring the building, and of the service connection; but if not, that no charge whatever should be made against him. There are about eleven hundred houses in this district, and the making of service connections and introduction of lamps will occupy two or three weeks. After that, some preliminary experiments are to be made before the general lighting of the district, but this is expected to occur by September 1, or perhaps earlier. Meanwhile the residents of that part of Chrystie, Houston and Stanton Streets nearest to the great engine-rooms of the Brush Company in Stanton Street are becoming alarmed at the prospect of having machinery of such tremendous power placed so near them, and have addressed a unanimous remonstrance to the Board of Health, claiming that the heat from the huge boilers will be unwholesome and annoying, to say nothing of the danger of fire or explosion. The region is one crowded with swarming tenement-houses, and these complaints, probably have some

foundation, but it is hardly likely that the proceedings of the company will be interfered with.

NOTWITHSTANDING the high prices of labor and materials the aggregate of building operations in New York during the past six months surpasses that for a like period at any time within the history of the city. Between January 1 and July 1 thirteen hundred and sixty-five permits were issued from the Bureau of Buildings for new structures, and nineteen hundred and ninety-eight permits for alterations. The total estimated cost of the new buildings was more than twenty-six million dollars, or nearly twenty thousand dollars apiece, but this high average is partly due to an unusual proportion of very expensive structures, such as office-buildings and apartment-houses. The latter, particularly, are steadily advancing in popularity, and the more recent ones are constructed with great thoroughness, and a corresponding outlay of money. The fashion of lofty building has spread rapidly and structures of nine and ten stories are becoming common. It is to be hoped that no earthquakes will occur to frighten the owners of such property before they have derived a reasonable return from their investment, but it will do no harm to remember that New York is situated in a region by no means exempt from such phenomena, and that a few shocks of unusual vigor would make havoc with many of the most costly buildings in the city. Some of the older mechanics in New York can remember the panic which seized upon real-estate proprietors there many years ago on account of the excessive loftiness of certain mercantile buildings, most of which were razed one or two stories in consequence, and the next generation may witness a similar revolution of feeling, if nothing worse.

THE Royal Institute of British Architects has suffered a little loss of dignity through the well-meant, but rather injudicious zeal of some of its officers in volunteering advice which was not asked for, and, as usually happens in such cases, was not very graciously received. It seems that the British Government intends to build new offices for the Admiralty and the War Department, upon ground very near the Foreign Office building, just completed from Sir Gilbert Scott's designs. One of the façades is to extend about four hundred and fifty feet along the short street called Whitehall, from the Foreign Office to Charing Cross, while the other faces St. James' Park, on which are also situated Buckingham Palace and other fine buildings. Two narrow streets which now lead from Charing Cross to the Park are to be widened, and altogether the scheme seems to be a promising one. It did not, however, please the Council of the Institute, who took upon themselves the responsibility, as soon as the block plan was made public, of instructing the Honorary Secretaries to write an official letter to the Commissioner of Public Works, protesting against its adoption. Instead of the two new sixty-foot streets, the protest urged that a single avenue one hundred feet wide ought to be made from Charing Cross to the Park and demanded further that all the existing structures between the proposed site of the new buildings and Trafalgar Square should be swept away, so as to expose a third façade to the frequenters of the "finest site in Europe." As this would involve an enormous expense there is very little probability of the suggestion being carried out, but the gentlemen who prepared the letter were so persuaded of the soundness of their advice as to announce, rather incautiously, in the last clause, that the President of the Institute would be happy to attend any meeting of the Parliamentary Committee, and give such further explanations as might be desired. The opportunity which this proposition offered for snubbing the authors of what probably seemed to the committee an officious interference with their affairs was too good to be lost, and no notice whatever was taken of the offer.

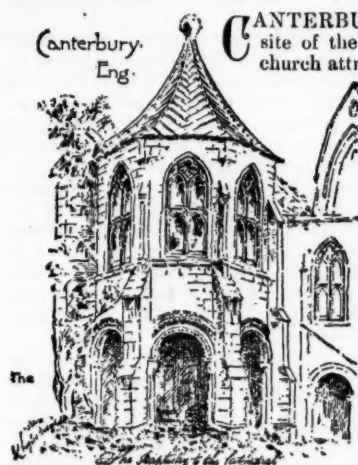
ALTHOUGH the result of this well-meant but imprudent proceeding is naturally mortifying to the members of the Institute, and others who care for the dignity of the profession, it does not follow that architects as a body have no right to express their opinion upon matters of public interest concerning which their special knowledge enables them to judge correctly: on the contrary, their advice in such affairs is of great value, and should be received with the utmost respect; and any want of consideration or other circumstance which may tend to lessen the authority of such suggestions is to be deplored. In this case the most serious mistake seems to have been the precipita-

tion with which what purported to be the sentence of the collective profession was pronounced upon a plan shown to be merely tentative in character by the announcement which accompanied it, that the design for the building indicated in it would be selected in competition. The sweeping character of the criticism contained in the letter was again injudicious, since there was certainly room for a variety of opinion in regard to some of the points considered, and those constituents of the Council who had, or might have had, a different way of looking at the matter, were entitled to the respect which would be shown by extreme caution in the treatment of doubtful points. The principal value of the utterances of such a body depends upon their being incontrovertible, and hasty or uncalled-for criticism, however well intentioned, is best left to individual responsibility.

THE announcement, made by authority of a Government Bureau, that the white pine forests of the United States would at the present rate of consumption furnish less than twelve years' supply of that indispensable timber, although copied into most of the papers, has not received the general attention which it deserves, and probably will not until the advancing cost of pine lumber brings the lesson forcibly home to the public mind. This advance has, however, already begun, the price of pine land in the great timber-producing states having doubled within a few weeks, and the question of the employment of some other material for the coarser uses of building is earnestly discussed among architects and contractors. On some accounts the substitution of hard wood for pine in the finishing of houses would tend to promote their solidity as well as their artistic interest, both of which are compromised by the universal habit of using hard wood only in the form of veneers or casings upon grounds of cheaper material; but a decided progress will have to be made in the art of seasoning and working the timber of deciduous trees before it can be used in large pieces in a way to satisfy those accustomed to the straightness, smoothness and unvarying character of pine. For framing, spruce and hemlock, with whitewood in the Southern and Middle states, will probably soon occupy the field entirely, and the makers of laths and shingles will perhaps transfer their industry to the forests of hemlock or arbor-vitæ. For interior finish, ash, oak, including many kinds now rejected, chestnut, black birch, walnut and elm, may be turned to good account, while for exterior work the deciduous varieties will probably be introduced before long, for the sake of variety, if not of economy, and with them a style of design different from that now practised, to which they are totally unsuited.

AFTER prolonged consideration the Committee of the House of Representatives on Foreign Affairs has presented a majority report favoring the incorporation of the Maritime Canal Company of Nicaragua, and recommending the acceptance by Congress of the provision in the charter under which the United States, for the encouragement of a work of such great public utility, is to guarantee three per cent interest on the cost of the canal for twenty years after its completion, but with the proviso that the sum upon which interest is to be thus guaranteed shall not exceed seventy-five million dollars, and that no obligation shall be incurred by the United States until the canal is in actual and successful operation. The members of the committee seem to have made a thorough investigation of the scheme, and have very prudently secured certain modifications in the plan of the canal before giving it the sanction of their favorable report, increasing, for instance, the minimum depth to twenty-eight feet, and requiring a length of six hundred feet in all the locks. With these modifications they regard the scheme as a good one. One of the best features is the great width of the water-way for a considerable part of the distance across the isthmus. Of the entire length of the canal, something like four-fifths consists of a chain of lakes, in which the largest vessels can manoeuvre, or lie at anchor and refit in smooth water, and this advantage will go far to offset the inconvenience of the locks, about which the advocates of the sea-level canal at Panama have so much to say. The Democratic members of the committee, while not fully concurring with their colleagues, present a minority report favoring the incorporation of the company, but advising delay until proper assurances are received that no obstacle will be placed in the way of the undertaking by foreign powers, and disapproving the proposed guarantee of interest by the United States.

THE ENGLISH CATHEDRALS.—IV.



CANTERBURY Cathedral stands on the site of the primitive Roman or British church attributed to King Lucius, which was sacked and destroyed by the Danes, rebuilt by Canute, and finally completely burned in 1067. Nothing of this building remains.

The succeeding cathedral was begun between 1070-1089, and was finally dedicated 1130. In 1174, four years after the murder of Becket, the "glorious choir of Conrad" was burned, but within ten years was again rebuilt. Immediately after this the nave and transepts were taken down and rebuilt. The existing edifice embraces in itself portions of these different works.

The following dates are assigned:—
1070-1109. Crypt as far as Trinity Chapel, and the towers of St. Andrew and St. Anselm.

1174-1184. Choir (the longest—180'—in England.)

1178-1184. Retro-choir and crypt eastward of Trinity Chapel.

1304-1305. Choir-screen.

1378-1411. Perpendicular.—Nave.

1495. Perpendicular.—Central, or "Bell Harry" tower above the roof.

1449-1468. Lady-chapel.

1472-1492. Chapter-house.

1840. The northwest tower is finished by Mr. G. Stevens.

The romantic and historical interest that centres about Canterbury perhaps excels the interest that is excited by its architectural merits. The first resting-place of the Christian Church in England, from which went out the itinerant preachers of the Gospel to the native Saxons, and to which they looked for aid and counsel when they had established churches elsewhere; later the seat of the primate of England, who in early days played no mean part in the temporal affairs of the realm; the burial-place of many of the saints, bishops and fathers of the church—Dunstan, Anselm, Becket; the background, as it were, of many a quarrel between church



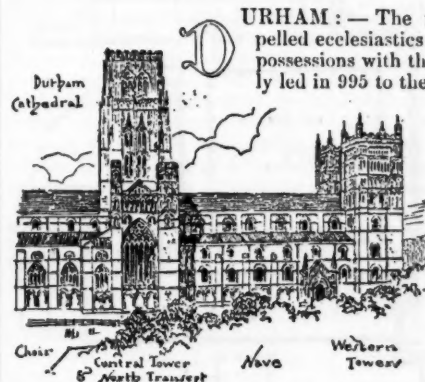
and state, in which the figures of Lanfranc, Anselm and Becket loom up with a gloomy splendor; and finally, as the scene of one of the most notorious of the many acts of bloody sacrilege which have been enacted within the most sacred precincts, the murder of Thomas à Becket, Canterbury possesses as great interest for the student of history as of architecture, and while the former pictures to himself the struggle between the strong-willed Becket, actively aided only by the monk Grim, and the four knights, sycophants of Henry II, the latter can imagine William of Sens, the master-builder or architect of the present choir, falling from a scaffold fifty feet above the choir floor, and afterwards from his sick-bed giving instructions to

his successor, William of England, as to how the work should be carried on; and he will, while his brother student notices the flights of steps leading up to the choir, Trinity Chapel, and the aisles of the retro-choir worn by the knees of climbing pilgrims and penitents, understand that the unusual differences of level which necessitate these steps is caused by the existence of huge crypts below,—crypts which Elizabeth assigned to the use of the French and Flemish refugees, clothiers and silk-weavers, driven from their homes by the fierce zeal of the Duke of Alva, and where for many years the noise of the silk-loom was heard.

But the elevation of the choir-floor levels is not the only unusual thing about this portion of the building. The marked expansion and contraction of the choir-walls is very noticeable and was caused by the architect's desire to connect his new work with the towers of St. Anselm and St. Andrew, which had not been destroyed by the fire.

Of the towers, the northwestern one is quite modern, having been finished as late as 1840, and replaced the Norman tower known as the "Arundel steeple;" the southwestern tower or "Dunstan steeple" dates from 1413-1517. The central tower or "Bell Harry" replaces the "Angel" steeple and dates from 1495-1517, and is therefore Perpendicular in style. It is 235' high.

The Norman staircase shown in the cut leads up to the grammar school, and is the only one known.



DURHAM:—The necessity which compelled ecclesiastics of old to defend their possessions with the strong hand probably led in 995 to the selection of the present commanding site of the cathedral as the final resting-place of the body of St. Cuthbert, with which in 875 the monks had fled when the Danes attacked Northumbria. Here a little church was built of the branches of the forest trees that thickly covered the hill. A second

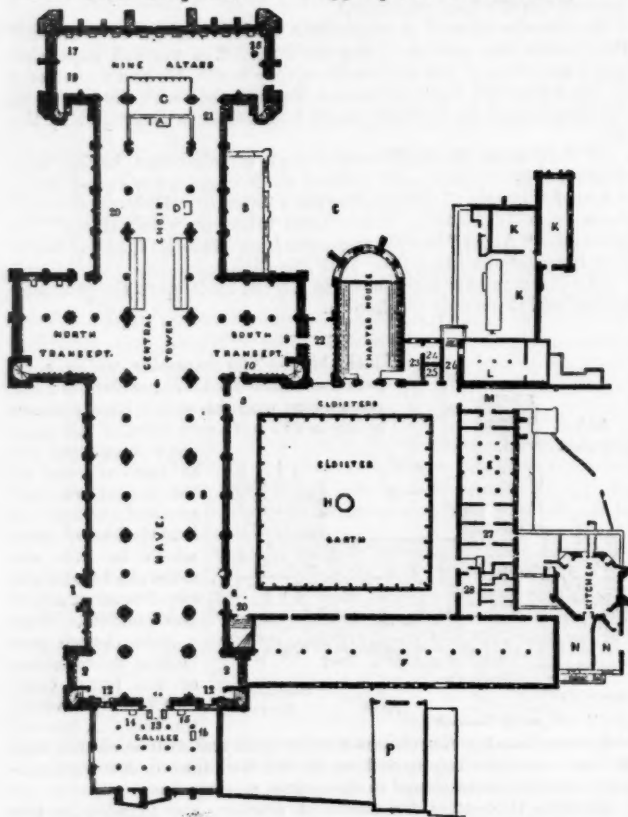
temporary wooden church was at once built and a stone church was at the same time begun, and so far finished that in 999 St. Cuthbert's remains were placed in their final resting-place.

Between 1071-1080 the Castle of Durham was founded by the Conqueror, and shortly after the Earldom of Northumberland was conferred on the bishop who thus became one of the mightiest of temporal and spiritual potentates in the realm. In his Norman Conquest Freeman says: "The Prelate of Durham became one, and the more important, of the only two English prelates whose worldly franchises invested them with some faint shadow of the sovereign powers enjoyed by the princely churchmen of the Empire. The Bishop of Ely in his island, the Bishop of Durham in his hill-fortress, possessed powers which no other English ecclesiastic was allowed to share. Aidan and Cuthbert had lived almost a hermit's life among their monks on their lonely island; their successors grew into the lords of a palatinate, in which it was not the peace of the king but the peace of the bishop which the wrong-doer was in legal language held to have broken. The external aspect of the city of itself suggests its peculiar character. Durham alone, among English cities, with its highest point crowned not only by the minster but by the vast castle of the Prince-Bishop, recalls to mind those cities of the Empire—Lausanne, or Chur, or Sitten, where the priest who bore alike the sword and the pastoral staff looked down from his fortified heights on a flock which he had to guard no less against worldly than against ghostly foes. Such a change could never have taken place if the see of St. Cuthbert had still lingered in its hermit-island; it could hardly have taken place if he had finished his wanderings on a spot less clearly marked out by nature for dominion. The translation of the see to Durham by Ealdhun is the turning-point in the history of the great bishopric."

The monks who brought St. Cuthbert's body to Durham, and their successors were after a time replaced by secular canons who, towards the end of the eleventh century, were supplanted in their turn by monks who since the conquest had been established at Wearmouth and Jarrow. The mode of monastic life requiring a greater variety of buildings and larger, probably led to the removal of Ealdhun's cathedral, and the beginning in 1093 of the present vast and complicated structure, the plan of which Bishop Carlisle is said to have brought with him from Normandy on his return from a short period of banishment. The work then begun was probably continued without interruption until, about 1128, the Norman Church consisted of a "choir terminated by a triple apse; a low central tower; transepts with eastern aisles; and nave terminating in two western towers." To this building as a nucleus alterations and additions have been made until the plan of the building has been developed into one of extreme interest and beauty. The following dates have been assigned:—

Norman.—Crypts below the refectory.

- 1093-1095. *Norman*. — Choir and aisles.
 1095-1099. *Norman*. — Great transept.
 1099-1128. *Norman*. — Nave and western towers.
 1133-1143. *Norman*. — Remains of Chapter-house.
 1153-1195. *Transition*. — Lady-chapel or Galilee (west porch).
 Circa-1230. *Early English*. — Eastern transept or "Nine Altars."
 Circa 1400. *Perpendicular*. — Dormitory, now the new library.
 1388-1437. *Perpendicular*. — Cloister.
 1457-1480. *Perpendicular*. — Upper part of central tower.



PLAN OF DURHAM CATHEDRAL AND CONVENTUAL BUILDINGS.

The misfortunes that have fallen on the cathedral have been not so heavy as in the case of many others: Work on a Lady-chapel at the east end had to be abandoned because of the failure of the foundations, a mischance which led to the building of the Galilee in its present position; the short spire crowning the central tower was struck by lightning in 1429 which eventually required the entire rebuilding of the upper part of the tower which was not finished until 1480; after the battle of Dunbar, 1650, Scottish prisoners confined in the Cathedral burnt the wood-work and defaced the altar, screen and monuments; between 1778 and 1800 important "repairs" were made by Wyatt who scraped and cut away the stone-work of the north side and the western towers quite destroying the character of their mouldings. Wyatt also partly pulled down the chapter-house, and proposed to destroy the Galilee for the purpose of making a drive around the west end of the building. This piece of vandalism was prevented only by the earnest remonstrances of the Society of Antiquaries. But for some reason either this society did not raise its voice in remonstrance, or its pleadings were unheard, when in 1796-1797 a scandalous piece of destruction was carried out. At that time the chapter-house, the finest Norman chapter-house in England, was found too plain, comfortless and inconvenient for the purposes of the iconoclastic dean and chapter, and it was determined to replace it by a more elegant and commodious structure. The work of destruction was carried out in the most barbarously wanton way: the keystones of the groin-ribs were knocked out, and the whole roof was made to fall in a mass into the building and upon the tombs and gravestones, which no one took the pains to remove. The eastern apsidal end was then removed; but here the work halted. A new lath-and-plaster wall was built within the remains, the east end was closed by a plain wall, the floor was boarded over and a plaster ceiling built. In 1830 parts of this make-shift work were removed, so as to disclose the original work.

At various times during the present century the central tower, the east transept, the south side of the nave and the choir have passed through the hands of different restorers.

The interior is more satisfactory than the exterior, both in its general disposition and in much of its detail. One of the first things that attract the attention is the alternation of circular nave and choir piers with square piers faced with clustered shafts. These massive circular piers are ornamented in the choir by deeply-incised spiral lines, while in the nave the incised lines take the form of lozenges, zig-zags, and vertical flutings alternately. It has been suggested that these incisions were once filled with colored plaster

or metal-work, but as no trace of either has ever been discovered, the suggestion seems unwarrantable.

The arches of the central tower rising to an unusual height, their crowns being level with the vaulting of the nave, give an unusual air to this part of the structure. The quadripartite vaulting of the nave, with its pointed ribs, was probably put up in the transition period.

A cross of blue stone in the pavement of the nave just below the great north door marks the point, according to tradition, beyond which women were not allowed to advance into the cathedral. It is said that even in those early days woman's rights were seen to require more equitable treatment at the hand of the church, and one of the leading motives in building the Galilee—so styled because women were looked on by St. Cuthbert and his adherents as a species of Gentile—was to provide a more ample space where more women could, at a respectful distance to be sure, profit by beholding the mysterious rites in which husbands and brothers were allowed to share.

The Chapter House
Lincoln Cathedral.



LINCOLN Cathedral in its early days had various misadventures: the original Norman building built 1073-1092 was partly burned in 1124, as a consequence of which event the wooden nave roof was replaced by stone vaulting, and in 1185 the Cathedral was "clef from top to bottom by an earthquake."

The greater part of the building is Early English in style, and it ranks third in size and importance amongst Early English churches, the whole of the interior being of this style.

The cathedral is unusually varied in outline of plan: chapels, galilee-porch, chantries, and vestries, come pricking out all about the eastern end of the building and lend an added interest to, while they do not interfere with the larger and more noble portions, the west front and towers, the double transepts, the central tower, the retro-choir and the chapter-house. The elevated site shows off the building in a most imposing way, and as the cathedral is approached from the east the visitor gains a better impression of the whole mass, than in the case of other cathedrals where he is at once confronted by the western façade which is usually of such interest as to make other parts of the exterior seen afterward unnaturally insignificant.

The west front loses in harmony of style while it gains in interest because, probably from lack of funds, the lower stories of the Norman towers, and the central door-ways, and bands of sculptured figures were not replaced by Early English work.

Above this Norman work and on either side of it in the western chapels the west front is Early English, built in 1209-1235, and consists of stories of arcades of varying height and importance.

The interior of the nave is perhaps disappointing, although the details are good and the whole satisfying in that it is a complete specimen of Early English.

The central or Broad Tower—corruption of Rood Tower—fell in 1240, during the delivery of a denunciation of the bishop by one of the canons who exclaimed: "If we should hold our peace, the very stones would cry out against us;" at which words the tower fell. Notwithstanding his having been the cause of the disaster the bishop at once began to rebuild the tower, which was finished by his successor in 1300-1320. In this tower hangs "Great Tom of Lincoln" originally cast in 1610 and recast in 1835, enough new metal being added to increase its size by seven inches in diameter at the mouth and its weight by one ton: it now weighs 5 tons, 8 cwt., and across the mouth measures 6' 10½". It is the only one of the great bells of England which is occasionally swung, and is exceeded in size only by the new bell at St. Paul's, "Great Tom" at Oxford, "Great Peter" at Exeter, and probably by the big bell in the clock-tower of the Houses of Parliament. "Great Tom," before it was recast, hung in the northwest tower.

One of the most famous features of the cathedral is the Angel's Choir or presbytery, which consists of the retro-choir of five bays which extends beyond the eastern transept. The retro-choir obtains its popular name because of a series of Early English sculptured angels, thirty in number, which fill the spandrels of the triforium arches. Casts of a portion of this series can be seen in the architectural rooms of the Boston Museum of Fine Arts.

One of the structural curiosities of the place is the stone beam which extends between the western towers just above the vaulting of the west porch. It is built in the form of a very flat arch of twenty-three stones, each 11" thick and 1' 9¾" broad, the lengths being unequal. There are no indications that iron was used in its construction, and yet the joints seem to have been carelessly cut and the mortar in them is fully half an inch thick; yet nevertheless the

beam stands securely, though "it vibrates perceptibly when it is jumped upon."

An unusual feature for an English cathedral is the southeast porch which opens into the presbytery; it is a very fine composition. The chapter-house, here shown, is called by Pugin "truly grand."



West Front of Rochester Cathedral

gun and was continued until 1130, when it was duly consecrated. The great transept was built about 1200 and the choir somewhat later, so that the cathedral consists, briefly, of a Norman crypt and nave, with Perpendicular clerestory and an Early English choir and transept. There are, too, Decorated windows in the choir, and the doorway of the chapter-house is of the same period.

The cathedral was seriously injured by fire in 1138, and again in 1177, and during the siege of Rochester by Simon de Montfort, in 1264, it suffered a good deal. At this time, and afterwards in the times of the Puritans, the nave was turned into a stable, and after it was abandoned by the troops of the Commonwealth the nave was used as a carpenter's shop, and several saw-pits were dug in it. Of course much injury was done to the building at these times, and the monumental brasses, in which it was particularly rich, were entirely removed and destroyed.

This cathedral has many of the peculiarities of the cathedral at Canterbury, as that was endowed by its Norman builder, Lanfranc, with the peculiarities of St. Stephen's at Caen, particularly the peculiarity of the triforium arches opening onto the aisles.

The nave is covered by a wooden roof, as originally intended, so that the nave piers are lighter than is usual in Norman buildings.

The choir is elevated above the nave because of the existence of a crypt beneath its whole length, so that as at Canterbury it is reached by ascending a flight of steps.

Considerable alterations and restorations were in 1825-1830 made by Mr. Cottingham to the choir, to the chancel east of the east transepts, and to the central tower.

Gundulf's tower on the north side, between the transepts, is thought to have been the storage place for the records and charters, and to have been divided into two strong chambers, access to which was had only from the top.

INDUSTRIAL EDUCATION.

(Canterbury, Eng.)



the Rotterdam Chapter of the Architectural Society of the Netherlands, with the approval of the government, and with the partial

APROPOS of the recent report on Industrial Education, at the educational convention at Saratoga, —made by a committee of which Gen. Francis A. Walker was chairman,—it is not uninteresting to remember that one of the first practical attempts to give industrial education through the public schools was made under the auspices of an architectural society.

Some of us remember a little pamphlet circulated at Philadelphia in 1876, and giving some account in Dutch and English of the Ambachtsschool or Artisans' School at Rotterdam, Holland. Founded in 1869 in the instance of

support of the town council, it seems to have been the pioneer in this work on the Continent. Children in the reformatory schools, it is true, more fortunate than their more respectable contemporaries, had long been taught useful trades through the intervention of public or private charities. Many manufacturers, too, had found it necessary to train their workmen in schools connected with their factories, in order to obtain work sufficiently good to bear increasing competition. Moreover, the many higher technical schools of the Continent were offering advanced instruction to young men ready to enter the technical professions. But, after all, these three classes —those of paupers and criminals, of workmen attached to a few scattered factories, and of professional men —really comprised a pitifully small proportion of the working population of Europe. What was to be done with the great remainder of untaught, incapable, discontented workmen, was a question practically untouched when the Ambachtsschool was founded, with the avowed intention of educating skilful artisans for the public good, and at the public expense.

This was what the Rotterdam architects did in 1869. Now, there is hardly a country in Europe where similar measures are not receiving earnest consideration. Germany, moved thereto by her socialistic difficulties, raises the cry of "Education for labor through labor!" Shops are being annexed to the schools here and there with most gratifying results, and it is worthy of note in passing that the boys are drawn into these shops for their four hours per week of work, not only from the *realschulen* but also from the gymnasias, or Latin school, and that the teachers find their pupils more ready in Greek and Latin for this awakening of the active powers of the observation. Many of these shops are maintained by private enterprise; but the school teachers themselves are now being taught as a preliminary to a probable recognition of these courses by the government. A normal course was to be opened, for instance, at Dresden, on July 17, with the coöperation and support of the Saxon Minister of the Interior and of Education, and for the special benefit of the teachers of Saxony; and similar courses elsewhere have led to good results. Denmark, Austria, Russia, Norway and Sweden are making similar efforts. In Gothenburg, for example, twenty shops have been annexed since 1878 to the schools corresponding in grade to our grammar schools, in which 1,370 boys received instruction during the year 1877-79 at the public expense. These schools are both popular and successful, and the reports made of them are extraordinarily interesting; but more detailed accounts of the daily work and methods of instruction in these various schools cannot be given in the present article.

It is to France, however, that we must turn for the most thorough success. In 1873 a few enthusiasts won the consent of the government to the introduction of the study of carpentry into a single public school—that of the Rue Tournefort. The experiment succeeded beyond expectation. When the boys left the school, at the age of sixteen, they were already capable of earning something at their trades, while their general education had not been abated in any material particular. Says the director, M. Laubier, in a recent letter, "A large number of our pupils have distinguished themselves in the career which they have chosen, and what is really remarkable, *not a single one has changed his profession*, changes being very frequent among those pupils who have not had this training and guidance in school." So admirable were the results attained by this one experiment that Paris now boasts forty-two public schools in which equal attention is paid to manual and intellectual training, and what is more, the new code of education requires that every pupil in the French schools of the grammar grade shall be taught *the use of the tools employed in the principal trades*, as well as the applications of science to the industrial arts and to all the forms of manual labor. "The Republic of France," said the supporters of this feature in the code, "has need of contented and intelligent citizens: let us therefore train the children of France to sober labor, rather than to factious idleness. Again, France as a nation is ambitious of wealth and power: let her train her useless hands to money-making and to skilled labor." The French code of education, as it stands now, is nothing if not patriotic; every clause is aimed to secure the aggrandizement or the protection of the French idea, and the fact that this matter of industrial training has been allowed to take up so much space in its provisions, shows how strongly the need of the masses for this industrial training has been borne in upon the French patriots.

So much for what has been done abroad since the Architectural Society established the Ambachtsschool in 1869; but what of ourselves in America? We are, it is true, coming to a more or less grudgingly given recognition of the Kindergarten, which maintains the same principle of manual training in its modelling and weaving, and we too have our higher technical schools for the supply of the technical professions, and our reformatory industrial schools. But as regards the teaching of industrial skill in our ordinary schools and at public expense, the years have shown only a long series of isolated appeals from charitable associations, of occasional argumentative addresses and reports at educational gatherings, and of isolated practical efforts here and there like Professor Adler's Workingmen's School in New York, or the whittling schools in Boston and Gloucester. This year, indeed, a decided advance was made in Boston, where permission was gained from the School Board to give instructions in wood-work for two hours a week to classes in the Dwight School; but, although the experiment was encouraging in

results, it was maintained under difficulties by private liberality, and it was neither so widely known nor so justly appreciated as it should have been.

Why do we not realize more keenly and effectively the need for this industrial reform? Apart from the cogent educational reasons advanced for this training of hand as well as of brain, and apart from the advantages to national prosperity to be derived from the increase of money-earning power engendered by increase of skill, are not the causes which operated so powerfully upon the Rotterdam architects in 1869 working disastrously with us to-day? The little Ambachtsschool pamphlet above referred to is prefaced by the following statement:—

"The great scarcity of trustworthy and clever workmen, so keenly felt for several years, has certainly caused many an architect and many a builder to wish that something efficient might be done in order to train up young artisans to clever workmen. In the present day, now that the wages of workmen do not always increase in the same ratio as their wants, the workshops are no longer, as they formerly may have been, the best schools for young beginners. In order to earn for themselves as much as possible the men have no time to occupy themselves with the boys. Every minute which a workman devotes to helping his young companion is a loss to himself. So the youngsters have no other means left to qualify themselves for their trade than 'looking at what the men do,' and it may be easily comprehended that such cannot be called a proper training." Probably there are few architects in the United States to-day who would not heartily subscribe to this statement, or who could not illustrate it by countless discouraging experiences of their own with workmen. Indeed, some of our younger architects, at least, would probably have been heartily thankful if they, as well as the workmen on whom they depend, were a little better equipped in the matter of a practical knowledge of the everyday processes of the building arts. The young architect of the schools is often looked on with just distrust by reason of his theoretical facility and his corresponding capacity for practical blunders, and he is sometimes advised to try a course of brick-laying to bring him to his senses. Ought he not, from his own experience of the need for systematic industrial training, to lend his co-operation to the movement practically inaugurated by his brethren of Rotterdam?

Mr. Morris would teach us to believe that our art can never be regenerated until our artisans take pleasure in their work, and make their work an expression of their pleasure. Can artisans or architects take pleasure or express pleasure in doing what they do not know how to do well? What, then, is to become of our art if artisans or architect remain ignorant and unskilled in the very constructive features on which their art is based, and out of which it should grow? The much quoted workman of the Middle Ages had been trained by experiment and observation to a realizing sense of the function of the capital, and he bodied forth his skill and his pleasure therein in his carving, and made it art, but we can hardly blame our workman of to-day for not giving expression to his skill, and to his pleasure therein, when he has no skill and consequently no pleasure to express. If Mr. Morris be right, we need this training for the children of our artisans and architects, not only that we may have thorough work,—well-paid and well-paying work,—but also that we may give both artisan and architect an opportunity to work simply, unconsciously,—in short, with a skill which has become second nature,—toward that artistic perfection over which we have spent so many vague, unembodied aspirations, and so much purposeless and pedantic criticism.

THE ILLUSTRATIONS.

A RENAISSANCE DINING-ROOM MANTEL AND BOOK-CASE. BY B. J. TALBERT.

[From the *Cabinet Maker and Art Furnisher*.]

THIS mantelpiece is a capital example of the period of English Renaissance dating from Elizabethan to Jacobean, and in producing this design Mr. Talbert evidently had Elizabethan in his mind, for he does not hesitate to employ the Tudor arch for the grate-opening. We need hardly say that many specimens of Elizabethan belonging to the transition period are mixed with Tudor Gothic, and this composite character is looked upon by some as a charm rather than an objection. In this sketch the designer has ignored the modern craving for plate-glass, and substitutes some choice panelling and wood carving in its place.

This combined sideboard and book-rack is interesting because it exemplifies the style in which Talbert first made a reputation—viz., domestic Gothic. He was the designer who first applied Gothic to domestic furniture in a satisfactory manner, and some consider his book on "Gothic Forms as applied to Wood-work" the most valuable of all his publications. Every previous attempt at Gothic furniture by Pugin and others had been too architectural, and it was left for the then young Scotchman, to show how the ecclesiastical style could be reduced to homely purposes. Thus Talbert paved the way for a return to the thoroughness and solidity in furniture now so prevalent. We do not much admire Gothic in any form for domestic furniture, it is almost invariably so cheerless and clumsy, but if it is to be tolerated at all the library is the apartment for it.

TOMB IN THE CEMETERY AT BORDEAUX, FRANCE. M. BOUSSARD, ARCHITECT. M. A. JOUANDOT, SCULPTOR.

[From *Le Moniteur des Architectes*.]

THE FIRST-PRIZE DESIGN IN THE INTERNATIONAL COMPETITION FOR THE VICTOR EMMANUEL MONUMENT.

[From the *Builder*.]

The first premium has been carried off, as already mentioned, by a young French architect, M. Henri Nenot, who has not yet reached his twenty-ninth year, and who gave early promise of distinction. Having made a journey in 1880 to Delos, Smyrna, Bairout, Baalbeck, Damascus, Jerusalem and Jaffa, passing thence to Egypt, and ascending the Nile for the purpose of studying classic art, he on his return entered the list of competitors for the Victor Emmanuel monument. Full of the impressions gained during his journey, he evolved the design which has been awarded the first prize of 50,000 lire. His work resembles the Piazza del Plebiscito of Naples, and would be a second Piazza di San Pietro, but chaster in style, more in accordance with the rules of classic art, and somewhat smaller. He proposes it to be placed in the Piazza di Termini, Rome. It is of semi-circular form, a triumphal arch occupying the centre, and facing this is placed an obelisk, a modified form of Trajan's Column in the Place Vendôme, Paris. Sculpture plays an important part in M. Nenot's design, fifty-one statues being distributed over the semicircle and the triumphal arch. Four triumphal cars, in the form of the bigas of the Roman circus, surmount the arch and the ends of the arcade respectively. The column in the centre bears the figure of Victor Emmanuel in modern dress, its base being surrounded by eight statues. Four fountains complete the decoration of the monument. The column is covered with bas-reliefs, winding spirally round it, and representing scenes from the Italian wars of independence. The design of M. Nenot admits of an alternative: an equestrian statue of Victor Emmanuel may take the place of the triumphal column if the judges should deem fit to substitute it. The wall spaces of the portico of the arcades are to be filled with reliefs.

RAMBLING SKETCHES. THE OSWESTRY OLD CHURCH. BY MR. T. RAFFLES DAVISON.

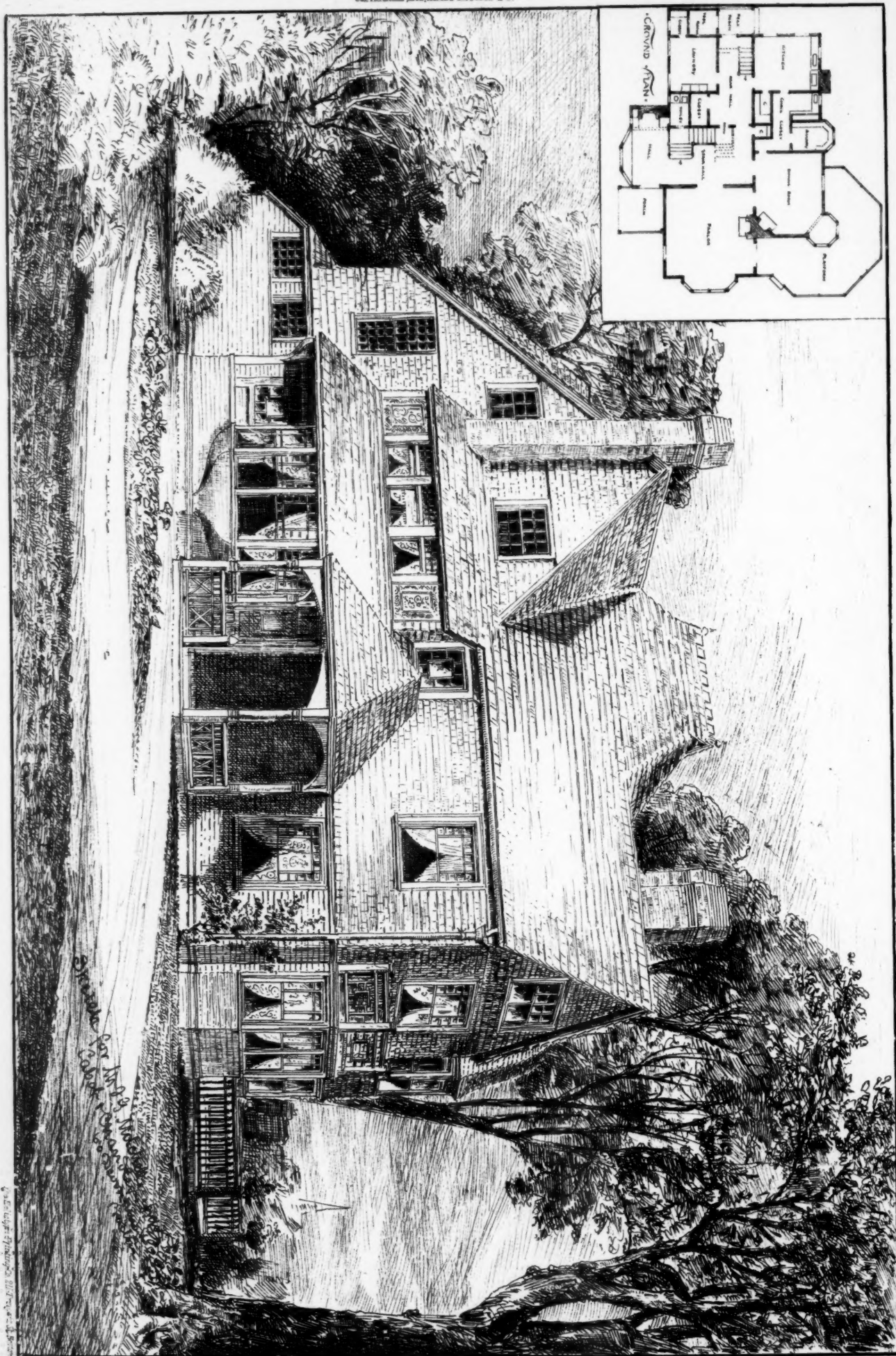
[From the *British Architect*.]

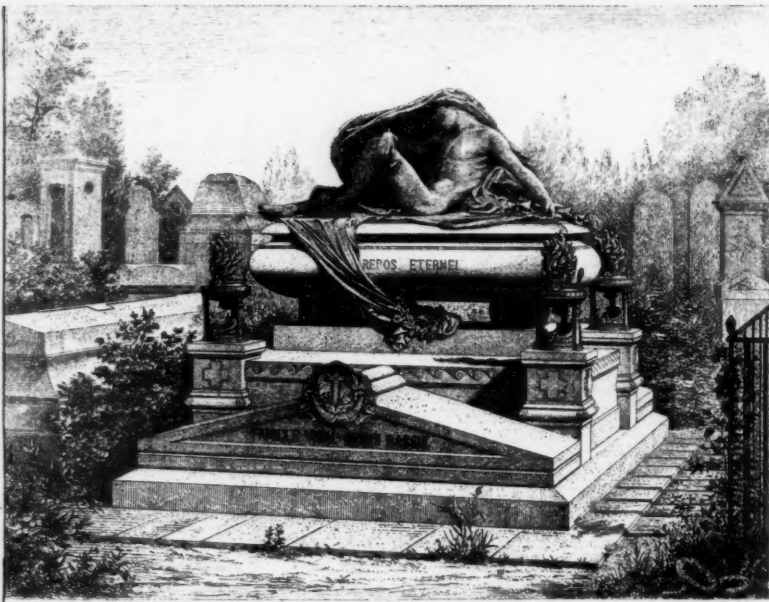
The Oswestry Old Church is an instance in which "restoration" must have been very welcome. It appears to have had little good work about it, and to have chiefly gloried in a fine old tower, which has been singularly battered about and patched up. Therefore the £10,000, which the late Mr. Street expended on the restoration has been very largely devoted to the production of new work of original design; in Mr. Street's hands this has been a good thing, for he has evidently taken great pleasure in the work, and the new open-timber roofs, nave arcades, reredos, pulpit, and tracery windows are all very good examples of his skill. The church, as restored, is a large one, holding, at a pinch, some 2,000 people, without galleries, and the effect of the interior is very varied and interesting. As my purpose has been chiefly to show some of the excellent details of Mr. Street's work I will refer those who care to know the history of the work to a sixpenny pamphlet, published by Messrs. Roberts, Woodall, and Venables, of Oswestry. I believe the cost of the reredos here shown, the central portion being alabaster, was about £700. The font holds seated figures of the four evangelists round the bowl. The Yale Monument of which I have given a sketch, records the death, in 1616, of Hugh Yale, an alderman of the Corporation, who, from 1578, when he was made a Burgess, to the time of his death, was a prominent citizen of Oswestry. The monument is also in memory of "Dorothy, his wife, daughter of Roger Roden, Esq., of Burton, in the county of Denbigh." The Yales were of the same family as the one of that name who founded a college in America. He and his wife were buried in the St. Mary chancel of the church; and the monument over them being destroyed in the Civil Wars, the one now existing was erected near the western door of the nave, in the north aisle. Pennant, and other historians following him have, it seems, misread the inscription on it by adding commas where none exist, and so made it appear that the church was destroyed in 1616, and that the building was dedicated to St. Mary, a fact which I originally took for gospel when I made the sketch view in 1879—hence the title on the illustration. But thanks to the courtesy of a local archaeologist, I now stand corrected. Oliver Cromwell is credited with having stabled 1,000 horses in this church, which was not only impious, but impossible, and the cavaliers of Charles I are reported to have battered the tower nearly down: therefore, whichever side we take to represent good or evil, it is evident that the church was, just at that period of its history, out of favor both with God and the devil.

ALTAR OF ST. PHILIP NERI, FOR THE NEW ORATORY CHURCH, BROMPTON, S. W. MR. HERBERT GRIBBLE, ARCHITECT.

[From the *Building News*.]

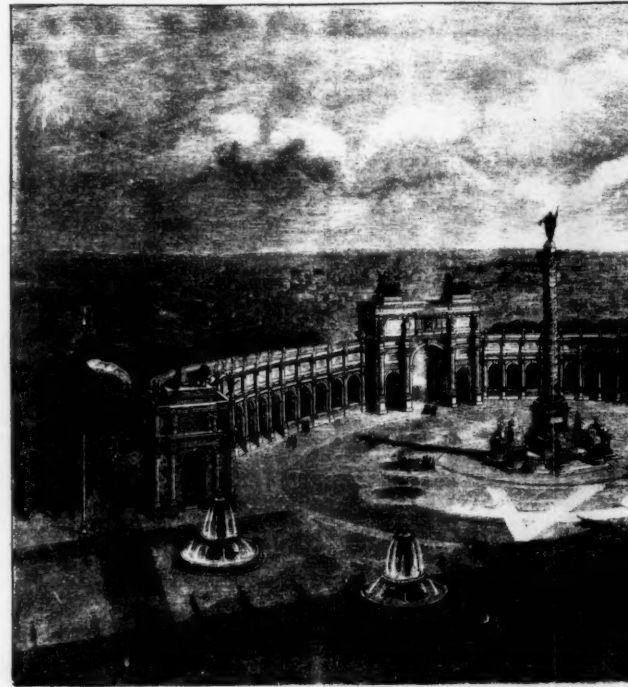
The transepts of the new Oratory church are utilized as two chapels—the south is known as the Lady-chapel and the north as the St. Philip Neri, the founder of the order of Oratorians. The former chapel is already provided with an altar, which, for the last two hundred years, has done duty as the high altar at a church in Brescia, North Italy, now demolished to make way for a hospital. It is undergoing considerable repair, and receiving such additions and alterations as will fit it for its new abode. It dates from the latter part of the seventeenth century, and is somewhat Debased in architectural detail; but, nevertheless, cannot fail, from the richness of its material, to be a very attractive and exceptional feature in an





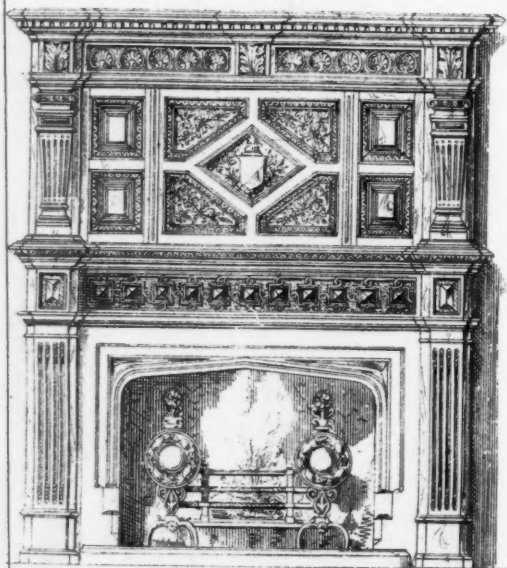
Moniteur des Architectes

TOMBEAU AU CIMETIERE DE BORDEAUX
FIRMA DU REPOS ETERNEL. PAR M. A. JUSANDOT SCULPTEUR
M. BOUSSARD ARCHITECTE

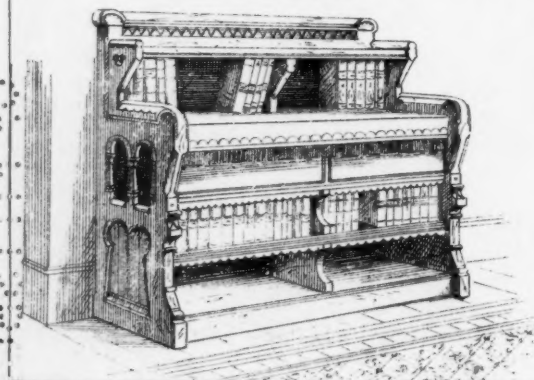


DESIGN FOR THE VICTOR EMMANUEL MONUMENT, ROME: FIRST PRIZE

OUR FOREIGN EXCHANGES. VI

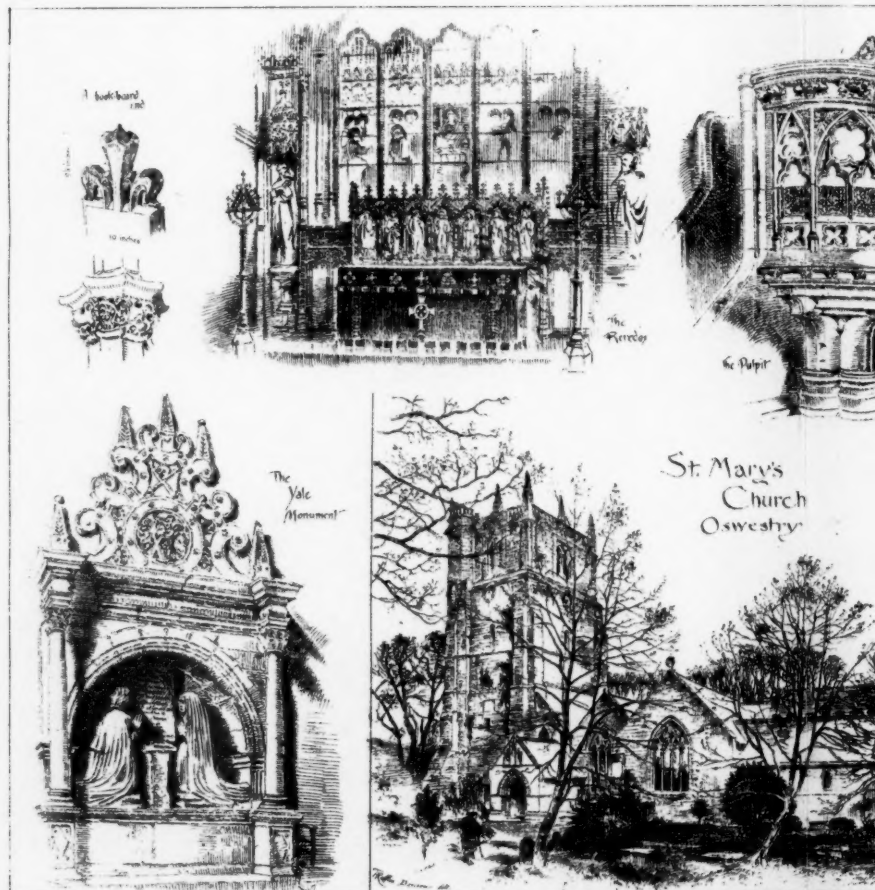


Renaissance Mantelpiece. By Bruce J. Talbot.



Design for Bookcase. By Bruce J. Talbot.

THE CABINET MAKER AND ART FURNISHER.



The British Architect.

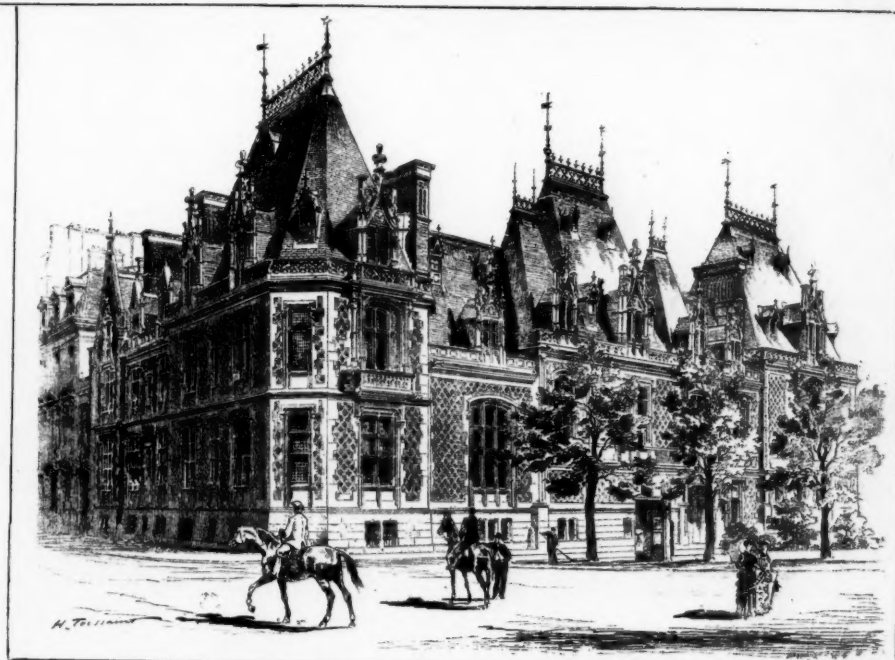
OSWESTRY CHURCH FROM THE SOUTH-EAST 1879
Redrawn by G. E. Street, R.A.

1882, JAMES ROSGOOD & CO

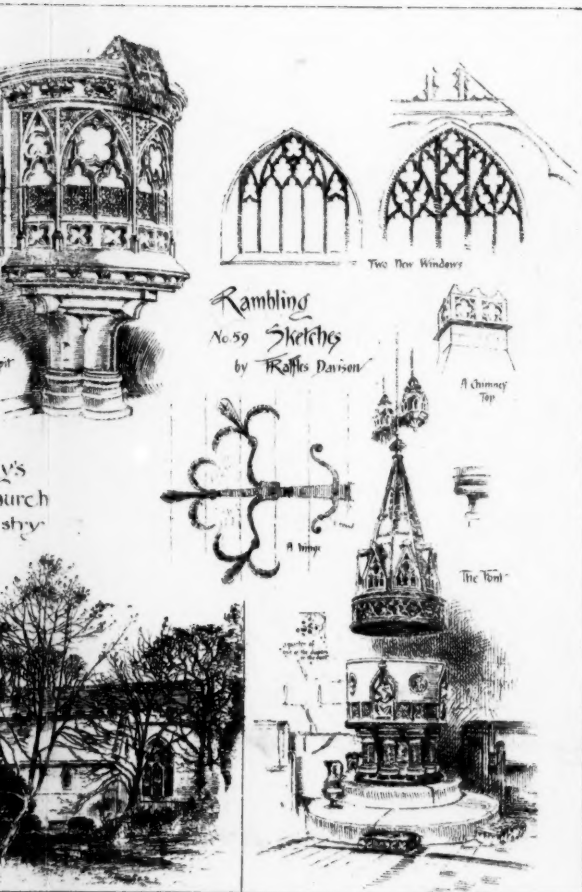


THE BUILDER.

ROME: FIRST PRIZE.—By M. NADAR, Architect.

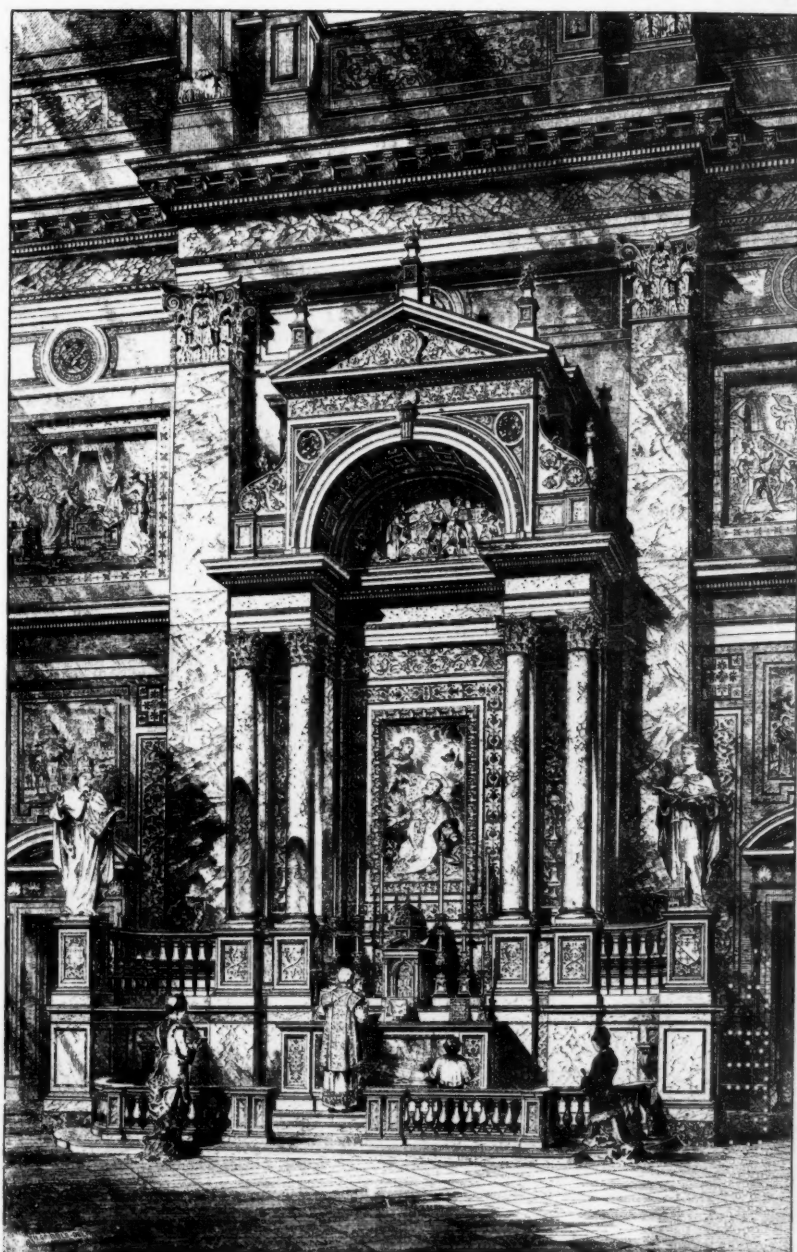


La Semaine des Constructeurs



South-East 1879

Printing Co. 211 Tremont St. Boston.



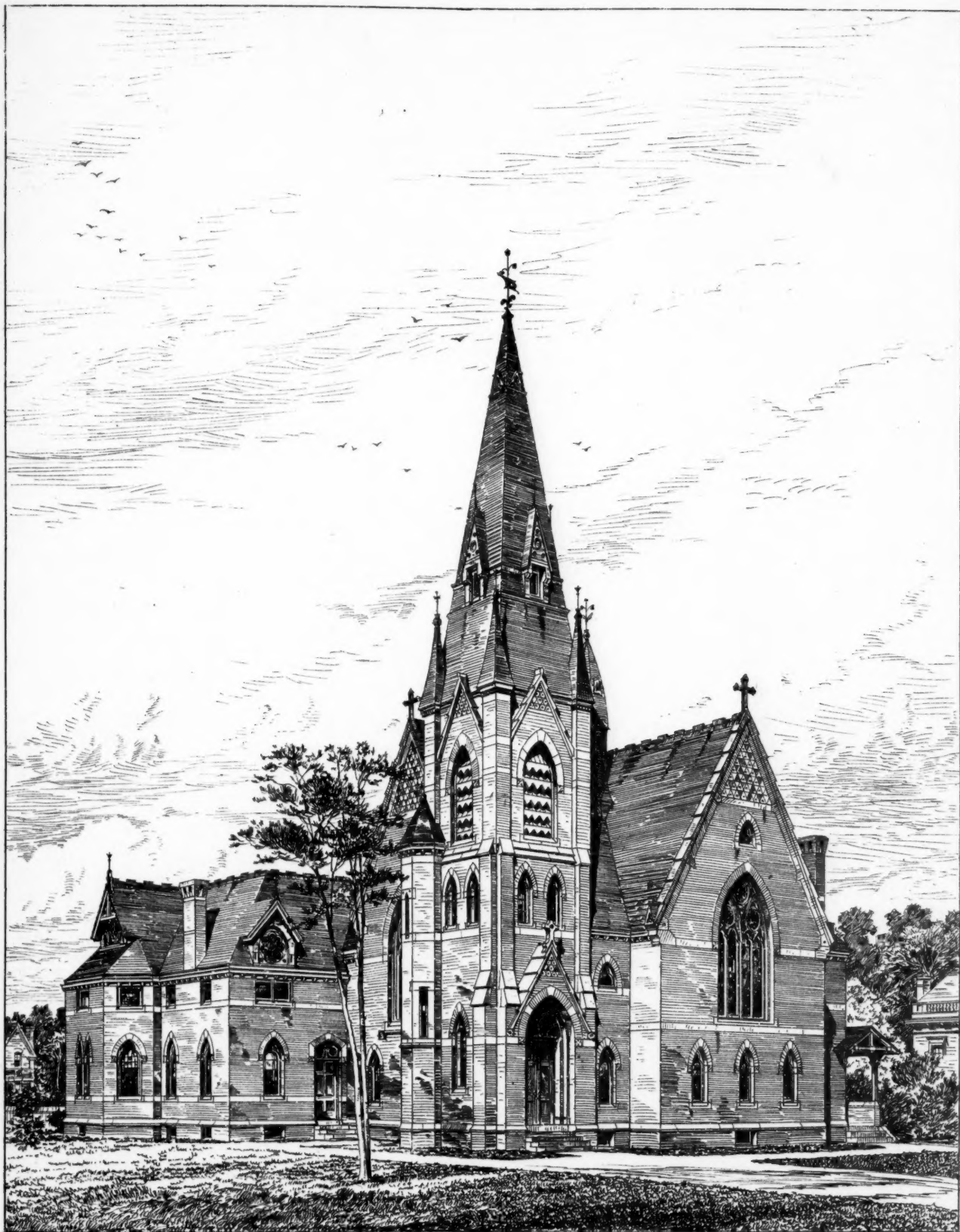
THE ALTAR OF ST. PHILIP NERI FOR THE NEW ORATORY CHURCH BROMPTON, S.W.

DESIGNED FOR HIS GRACE THE DUKE OF NORFOLK, E.M.

THE BUILDER NEWS.

HERBERT A. GRIBBLE ARCHT

[illegible]



M.E. Church at Lodi, N.Y. W.H. Hayes, Architect. MINNEAPOLIS, MINN.

1000
900
800
700
600
500
400
300
200
100
0

1000
900
800
700
600
500
400
300
200
100
0

English ecclesiastical structure. Its *ris-à-vis*, the subject of our illustration, though far from being small, and composed of the most rare and valuable marbles, will fail to compete with its opposite neighbor, either in magnitude or magnificence. Its situation is also not so favorable, in consequence of its being surrounded by a number of door-openings, which are of the greatest convenience, and practically indispensable, but at the same time, destroy the tranquility and isolation so desirable in a chapel of this character. This drawback has been overcome in a great measure by the construction of quadrant wings on each side of the altar, which entirely shut off the doors in question, and shelter the worshippers from distraction. The altar-rail is also arranged in such a manner as will contribute to the attainment of this object. The material used for the work is marble, chiefly from Italy, and will include samples of the following:—Bianco Nero, Rosso Antico, Sienna, Cippolino, Languedoc, Verde Antico, Genoa Green, and Rosso Levanto. The principal portion of the superstructure, the statues of St. Gregory and St. Cecilia, and all other portions of bas-relief will be in Carara statuary. The central picture over the retable will be in oil, surrounded by a frame of inlaid marble in three tints, and the subject in the lunette of "St. Philip Building the First Oratory," will be in Venetian mosaic, the cartoon for which will be prepared by a well-known artist in Rome. The two adjoining Corinthian pilasters are in Devon marble the caps of which are embellished by gilding, while the surrounding architecture will be appropriately furnished with historic and other suitable paintings.

PRIVATE DWELLING, PARIS. M. J. FEVRIER, ARCHITECT.

[From *La Semaine des Constructeurs*.]

This hôtel which fronts on the Rues Legendre and Thann, and on the Place Malesherbes, is built of brick, red with lozenge-work of black brick, and stone in the style of Louis XII.

METHODIST EPISCOPAL CHURCH, LODI, N. Y. MR. W. H. HAYES, ARCHITECT, MINNEAPOLIS, MINN.

This church is built of brick, with a finish of light sandstone, and has a corrugated iron ceiling. The total cost of the building was \$12,000.

HOUSE FOR J. G. MITCHELL, ESQ. MESSRS. CABOT & CHANDLER, ARCHITECTS, BOSTON, MASS.

BACKWARDNESS OF ARCHITECTURE.



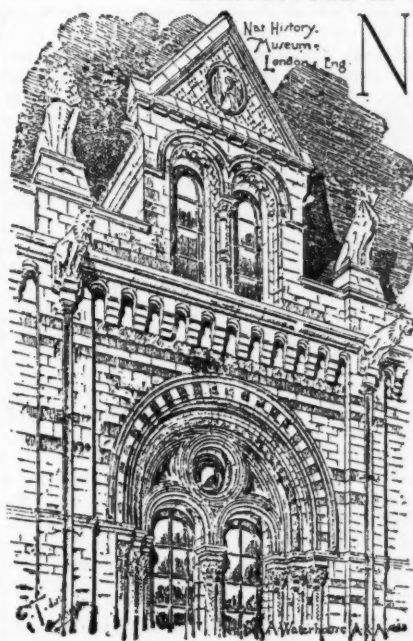
ALTHOUGH in painting and perhaps in sculpture also the United States are improving from year to year, it is astonishing how architecture drags behind. An enormous quantity of building goes on here. Wards spring into being in a few years. Burnt cities rise again before the ruins have done smoking. But the edifices, although sometimes loaded with ornament and constructed of costly materials, are seldom the work of an architect in the true sense of the term as now used—namely, a master of building, as one says master of a fine art. They are the work of

masters of mechanical and technical art as opposed to the fine arts. In New York it will be the merest chance if the next public building or costly residence does not fall into the hands of men who are not able even to sensibly "lift" modern European ideas in architecture. For one Jefferson Market Court-House, with its pleasing, though not very original design in elevation and coloring; we have any number of buildings like the post-office, the Metropolitan Museum, the Cathedral in Fifth Avenue, the brownstone Vanderbilt boxes. What frightens one in these buildings is the complacency with which owners and public regard them, and the silence of the press. They have the same vacuousness, the same absence of idea or sentiment for outline, composition, light and shade and color, which startle and disconcert the amateur in an exhibition of pictures at the Academy. Rich men and congregations are seldom able to secure for their large outlays the buildings which can be approved by a cultivated taste: a club might be expected to succeed better. But the recent experience of the Union League shows that a wealthy and ambitious organization, containing a very large proportion of cultivated men and an unusually high average of brains, cannot save itself from grievous and elementary mistakes in architecture. It is evident that in the building committees appointed by the general or State legislatures, congregations and clubs, there is seldom or never a majority competent to select the best architect and get from him work that is worth the money expended.

As things are now managed, an architect of genius has to stultify himself nine times to get a chance in the tenth instance to build something that he really approves of—and who can do this long without degenerating? This fact reflects perfectly the state of the fine arts—nay, perhaps even of the government of the community that built it. Pretentious communities want pretentious buildings. If New York were not misgoverned would we have our present court-house? If Washington were not corrupt, would we have our present post-office? If New York society had any dignity or backbone, would we have millionaires thrusting themselves forward by the mere weight of big houses, big picture-galleries, and lavish dec-

orations, with a cynicism worthy of our legislators? The millionaires would not build palaces in six months, but would employ real architects to build quietly and beautifully, just as they themselves would gradually enter society on their personal merits, not on their money-bags. At Washington some pains would be taken that the great buildings erected by the public funds all over the land were the very best to be procured. Our municipal government would slowly and carefully foster architecture by discouraging hasty work and reckless expenditure of the tax-payer's money. Our clubs and congregations would make it their first business to judge of the qualifications of architects on artistic, not on personal or interested grounds. The main point is that the demand should be a demand of taste. Architects cannot be independent, cannot "educate the public," cannot wait till they are dead for recognition. They depend almost as directly on the public as the actor, and their audience is neither so numerous nor so ready to be pleased with what is set before it. Until the public shall reform, until the press shall begin to call owners and architects to account for vulgar, stupid, and ridiculous work, there is no hope for American architecture. At present it represents the mere brute force of money more than anything else. It shows also restlessness, vagueness of purpose, smattering of foreign styles. No wonder many people prefer the barren monotony of blocks of brick and mortar to the ineffectual efforts of our unhappy architects. And along with as thorough and searching criticism as the press can give, must go, on the side of architects and owners, the most elaborate drawings and models of projected buildings. For, alas! the building once in place is there practically forever. Criticisms are forgotten, and people accustom their eyes to the ugly mass. Then associations give it dignity, and the city is saddled with a dull and pointless building to which the citizens cling with a fervor worthy of a St. Peter's or an Alhambra.—*The Critic*.

ARCHITECTURE IN 1882.



NEVER had it occurred to us to look upon the Royal Institute of British Architects as a body incorporated for the promotion of practical jokes; our eyes are, however, now open to our deficient appreciation of the capacity of that distinguished society when it unbends itself to high jinks. The subject of its principal prize for the present year was a "West-End Club" (1105), and it has crowned Mr. Beresford Pite for a marvellous "labor of an age in piled stones," a castle grim and mediaeval, broad spaces of bare wall, mulioned windows, narrow loop-holed openings, porches through which an army with

banners might deploy; crenelated towers bristling with conical capings; altogether the structure in which Beauty might have slept her enchanted sleep, or out of which one of the giants whom Jack the Great quelled might have sallied on his murderous forays. There is of course a reason for all things, and we conclude that Mr. Pite is a gentleman of an ascetic frame of mind, who has learned, during the inquiries into the natural history of clubs by which he drilled himself for his great and successful effort, that the members of these frivolous bodies had the bad habit of wasting their hours in staring from large windows at the men and the women, the carriages and the horses, which throng the streets: so, as a practical apostle of morals, he made it his duty to rebuke and check such unseemly levity on the part of all who might be fortunate enough to pass the ballot of his club. The decision of the Institute was, we conclude, reached in consequence of its leading spirits being at this minute, as loyal Englishmen, much exercised by Irish lawlessness, so that they could only look upon a building for the occupation of single gentlemen as partaking of the nature of a prison for suspects, and we must own that, regarded in the light of a veiled provision for the safe keeping of Irish patriots, Mr. Pite's castle in the air is singularly appropriate. It is a pity that the Government's sudden change of policy should have frustrated such healthful intentions when the man was there to provide a nobler and a more terrific Kilmainham. Mr. Howard Ince's design for the closely affined "Casino or Club for an Inland Watering-Place" (1145), which won the first prize at the Royal Academy, is not so mirth-inspiring. Nevertheless we are unable to see the appropriateness for its object of the somewhat solid composition of Perpendicular and Jacobean, with a

tower curiously recalling — probably from some accident of drawing — but with attenuated proportions, the tower of the Record Office. If the prizeman and the adjudicators respectively were put under compulsion to produce variants of the design to serve as an inland town-hall and a marine casino, we fancy they would be puzzled as to what features to retain and what to alter. — *Saturday Review*.

THE PRIMARY COLORS.¹



OF all the interesting phenomena concerning color, resulting from recent scientific researches, probably the hypothesis that red, green and violet are the three primary color sensations attracts most attention, because of its apparent antagonism with the fact that red, yellow and blue are the three primary colors of pigments.

All colors are really sensations, caused by the action of light on one of the divisions of the retina, the so-called layer of rods and cones. It has only recently been discovered, however, by Professor Max Schultz, that both the rods and the cones have each their peculiar function, and though probably both serve as elements of light, it is more especially the function of the rods, whilst the perception of color is due, possibly exclusively, to the cones. These cones appear to be divided into three sets. One set, being stimulated by the strongest vibrations of light, produces the sensation of red; another set, acted upon by the vibrations of medium strength, produces green; and the third set, responding to the short and weak vibrations, produces the sensation of violet. Red, green and violet are therefore termed primary colors. Intermediate vibrations affect two sets of cones simultaneously, and consequently produce compound or secondary colors. Upon the three sets of cones being excited together, in their proper proportions, the sensation of white is the consequence. If this theory be true we may assume the existence of a color-sense wherever we find the cones, and to mark it absent wherever they are absent. A defect in their arrangement probably accounts for color-blindness. It is well known that color-blind persons are usually insensible to the stronger, red-producing vibrations, though cases occur when they are blind to other colors and keenly sensible to the red; indeed, the partially color-blind as a rule appreciate more intensely the colors they are able to perceive than persons possessing the normal sense of color. The number of persons affected more or less with color-blindness is surprising: according to Professor Rood it has been estimated that in England about one person in every eighteen has an imperfect color-sense, though it is remarkable that the affliction is almost exclusively peculiar to the male sex, women being comparatively free from it. Often the color-blind are for years unconscious of their defect, and it is very difficult to demonstrate the fact to them. When we consider the theory of the rods and cones, and are aware that a slight difference in their arrangement causes a proportionate difference of color-perception, and knowing that we are all subject to a slight difference, it would appear probable that each individual is affected by the vibrations of light to a different degree, or, in other words, that possibly no two persons see colors exactly alike.

Color combinations may be demonstrated in different ways. Perhaps the simplest is by employing two lanterns and projecting colored light from both onto a white screen. The two color-discs, when superposed, produce one color, — the sum of the two separate discs. Taking the primary colors, red and green produce the sensation of yellow; red and violet produce pink; green and violet produce greenish-blue.

The resulting colors, yellow, pink, and greenish-blue, are the secondary colors, and it follows that the brightness or lightness of any of these colors must be greater than that of any of the primaries, because of the nearer approach to white caused by the combination: yellow, for instance, will be as bright as the brightness of red and green added together; white will be as bright as the brightness of the three primaries added together.

The different vibrations of which white light consists are capable of producing every possible color sensation, yet we cannot say that all color is due to them alone. Were it not for the power which natural bodies have of selecting their own particular color, or rather color-producing vibrations, the phenomena would be incomplete. No natural body creates color; it simply absorbs a part of the light thrown upon it, and rejects the remainder. It is the portion so rejected, and not that retained, which determines the color.

Intercepting the white beam of light from the lantern by red glass, we prevent the vibrations which produce the sensations of violet, blue, green, and greenish-yellow from passing through. The red glass absorbs all these rays, consequently the red rays alone are left, and we have a red disc on the screen. We will now from our second lantern project a greenish-blue light, this color being as nearly as possible the sum of the colors absorbed by the red medium. By moving the lanterns in order that this color may be, as it were, superposed, or added to the red, we produce white, thus proving that the red glass had absorbed all those rays of which the bluish-green consists, and these rays had only to be given back to reproduce the original white disc. Repeating this experiment, but

with blue and yellow lights, white is also produced, and not green, as might be expected from our experience of the result obtained by a mixture of blue and yellow pigments. By passing a beam of light through the blue and yellow glass together, placing both colors in the one lantern, green is produced, because the blue and yellow glass are not only transparent to their respective colors, but also to the green, which is contiguous to both; but the blue glass absorbs the yellow and less refrangible rays, and the yellow glass absorbs the blue and more refrangible rays; consequently green is the only color left to pass through both, and therefore when a beam of white light goes through these colors together, green is the only possible result. This is exactly what occurs in the mixture of pigments, and it is through the confounding of the mixture of light and the mixture of pigments that many erroneous conclusions are arrived at.

So far, absorption has been considered in connection with transmitted light: we have now, in order to show its connection with the colors of pigments, to consider it when combined with reflected light. The coloration of pigments, of flowers, of green leaves, indeed of all natural bodies, "is due to the combination of reflection with the phenomenon of absorption."² I have here a colorless glass vessel, containing a red solution, and of course it exhibits the same phenomena as colored glass: it requires light either transmitted or reflected to be seen, for when placed in front of the black screen it appears dark and colorless. By placing a white object in the solution we notice that part of the light directed upon it undergoes absorption whilst passing through the fluid, and the portion left is reflected by the object, and passes back again to the eye. This light, therefore, has itself gone twice through the fluid, or double the distance of the object from the front surface of the glass vessel. It is evident that our red color is due to what is called "selective absorption," red being the only color not devoured, as it were, by the fluid. We will now add to the solution some powdered chalk, each particle of which may be regarded as a minute white object reflecting a small quantity of the light not absorbed. All I have said of the one white object applies also to these minute particles. All color pigments are composed of such minute objects mixed with a vehicle which has the power of sifting the white light shed upon them, and selecting certain rays, whilst the particles reflect the remainder. The condition of the petals of flowers and of green leaves is just the same. A white lily, for instance, if it were quite smooth, would have the appearance of thin glass; it is, however, composed of a vast quantity of minute cells, so that it resembles finely-powdered glass, from each little particle of which light is reflected backwards and forwards, and there being nothing in the lily to cause the selection of one ray over another, the light is white. A scarlet geranium is similarly composed, but its particles or cells are infused with colored matter, which absorbs the green and blue rays, and the unabsorbed scarlet is reflected. All green leaves owe their color to the same cause; light passing backwards and forwards through a coloring matter which extinguishes the red rays is received upon the retina as green.

A property of absorption, not only interesting but of some importance to colorists, is the change of hue colors undergo when deepened or lightened. Each additional layer of a colored medium naturally absorbs more of the light not actually destroyed, and therefore deepens the color, until at last it too is altogether extinguished. Light, however, has been shown to consist of vibrations of different degrees of strength. This being the case, the stronger vibrations will continue to act after the weaker are quenched, or, as the color deepens, its hue alters. To explain this more clearly, I will quote from a lecture by Professor Stokes, F. R. S., who, for the sake of simplicity, presupposes two kinds of light, blue and red, having intensities respectively of 100 and 10. "There is, of course, a great predominance of blue over red. Now suppose in passing through a stratum of a certain thickness half the blue light is lost, and only half transmitted, and that 90 per cent of the red light is transmitted, then, after passing through the first stratum, the intensities will be respectively 50 and 9; after passing the second stratum of the same thickness the intensities will be 25 and 8.1; after the third 12.5 and 7.3; after the fourth 6.2 and 6.6, or about equal; but after passing through the next stratum they will be 3.1 and 5.8, so that, although the quantity of red light was so much smaller to begin with, the red is more lasting, and in light which has passed through five of these strata the red now predominates over the blue." I have here a glass vessel containing water; by adding a little red fluid you will perceive it has a blue hue, but by adding still more of the color it assumes a scarlet hue. The cause is evident. At first, the weaker blue vibrations were able to pass through, but when the absorbing liquid became more dense, the stronger red vibrations could only make their way. Conversely with this effect is the result obtained by the addition of white to a color pigment, for in this case the effect should be towards a hue of the more refrangible rays of blue and violet. The diagrams are colored with crimson lake, dark Brunswick green, and Prussian blue. These colors all show a decidedly bluer hue when mixed with white than would have been expected from the pure color.

I have shown that the primary sensations of color — red, green and violet — cannot be produced by the combination of any of the other color rays of white light, but that conversely all the other sensations of color are obtained by these three colors in different pro-

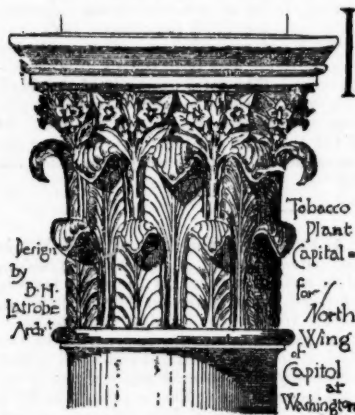
¹ A paper read before the Literary and Philosophical Society of Liverpool, by G. H. Morton, Jr.

² Stokes.

portions. The same may be said of the primary colors of pigments. Red, yellow and blue cannot be produced by the mixture of other color pigments; but these colors are capable of producing by admixture almost all other colors. It will be at once evident that the colors of each set are different, the primary green and violet sensations being substituted by yellow and blue as primary color pigments, and this substitution causes one to inquire whether the remaining primary of light, red, is of the same hue as the primary pigment of that name? It is here desirable to point out the very general idea the names of colors convey to the mind. When we say red, what do we mean? The term red is often applied to a color that may be almost orange on the one side or violet on the other; green, commonly speaking, may be almost yellow or blue; violet may mean almost pink or blue. I consider that there is as much difference in the primary red of the spectrum and the primary red pigment as there is between the green light and the yellow pigment, or between the violet light and the blue pigment.

Now, the primary red of light is a scarlet red; indeed, in some works the term scarlet has been applied to it. The green light is more inclined to yellow than blue, and the violet light is a decided blue violet and has been named blue by some writers. In pigments we find that the primary colors are the reverse of this. The best red pigment for the mixture with the greatest number of other colors is a crimson red; the best yellow is more inclined to orange than blue; the best blue is of a green hue. When these pigment colors are lightened by the addition of white, there is obtained, perhaps as near as it is possible to obtain with pigments, the secondary colors of light. It would thus appear that the colors which were formerly considered primary colors are really the secondary colors of light; and therefore, though red, yellow and blue may be the primary colors of pigments, they are certainly not primary color sensations caused by the vibrations of light.

ARCHITECTS' RESPONSIBILITY FOR MYOPIA.



IN the school-room there are two kinds of influence that work injuriously upon the eyesight. Under the first are classed all those things which compel the eye to strain itself in order to see distinctly small letters or objects; under the second, all those which cause a congestion or rush of blood to the head and eyes. To the first belong bad ventilation and improper light, too small and imperfect type, pale ink, many successive hours at the same kind of work, as in reading, writing, sewing, etc., without change or rest of the eye, all sorts of toil

causing the use of the eye until late at night and sometimes with very defective light. To the second belong not only those things just enumerated, but also the construction and arrangement of school desks and benches, which, in many schools, make it next to impossible for pupils to hold their bodies in proper position for any length of time. In order to demonstrate the role that bad air, bad light, etc., play in the school-room, I extract some pertinent remarks from a paper published by Dr. Loring of New York. He says: "I am, therefore, of the opinion that bad air alone, acting as the primal cause, may set in train a series of morbid processes, which may, and often do, affect not only the working capacity and integrity of the organ, but which may lead even to its total destruction. Thus simple irritation of the mucous membrane of the eye may, and often does, pass into actual inflammation, which, increasing in violence, may proceed from part to part till the entire organ is involved, and thus the sight become impaired or totally lost."

"Ought not the light to fall, not full in the face of the child, but first on the book or work and be reflected into the eye? Before answering this question precisely as it now stands, I should like to premise it by making the general assertion that not only is the direction in which the light comes important, but also its quantity and quality. Reduction in illumination is as a rule precisely equivalent to a reduction in the size of the object: therefore, the less the light the nearer an object must be brought to the eye, and the greater the strain in the act of vision. It is impossible to fix with any scientific exactness just the size that a window should be to give sufficient light for visual purposes, since this must vary with the exposure and surroundings of the room; but it has been reckoned in Germany that for a class-room containing twenty persons there should be at least four to six thousand square inches of glass, which would give to each scholar from 200 to 300 square inches, or what would be represented by a pane of glass from 14 to 17 inches square: such a room as this would be sufficiently lighted in any part. A room 20 feet square should not contain less than 70 to 80 square feet of glass, and it may be laid down as a rule that too much light cannot be obtained in a room, as all excess of glare can be guarded against by artificial shades if properly applied. More light enters

the room from the same amount of glass from the south than from the north, and a southern, southeastern or southwestern exposure is better than a northern, northeastern or northwestern, especially for class-rooms, and this, too, simply in regard to the amount of light, and independent of the purifying influences of direct sunlight. That a north room is better for the purposes of the artist is due to other causes and does not affect the general rule.

"The light should not come from directly in front, and especially is this the rule when artificial light is used; for when the light comes from directly in front of the person, the pupil of the eye becomes unduly contracted, which is equivalent to reducing the quantity of light, since less light enters the eye from the object viewed, while the eye is exposed to too much light reflected from the surrounding objects, and from the direct rays from the source of illumination. Neither should the light come from directly behind, as the object then lies in the shadow of the body. Nor yet from the right side, because in writing the shadow of the hand falls across the page, and a moving shadow over a lighted surface not only reduces the quantity of light and leads to a stooping position, but it is also more annoying to the eye than a uniform reduction in the illumination of even a greater degree." The best direction for the light to come from is the left-hand side, and from rather above than below the level of the head. Windows, therefore, should not be run down too near to the floor, as they often are in class-rooms and offices. I do not agree with the opinion often expressed, that the best light is that coming from directly above. I cannot refrain from adding, in this connection, the conclusion founded on Dr. Cohn's elaborate investigations in regard to nearsightedness among school children in Germany. He thus formulates it: "The narrower the street in which the school-house was built, the higher the opposite buildings, and the lower the story occupied by the class, the greater the number of nearsighted scholars." I should, then, from these considerations, say that the angle at which the light strikes the eye is important.—*Extract from a Report issued by the Dept. of Education.*

THE RECENT BUILDING ACCIDENT AT ST. LOUIS.

St. Louis, July 15, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT:

Dear Sirs,—In a late number of your paper you quote from the *Scientific American* a brief item about the fall of the Krafft, Holmes & Co. building in this city last spring. There were two investigations into the causes of this disaster, both directed by architects, and instituted by the owners of the building on one side and by the suddenly ejected tenants on the other side, beside the regular official "inquest" of the city building inspector, and considerable volunteer examination by reporters and builders and architects from this and other cities. The result of it all is that the matter remains as much an inexplicable mystery from any recognized scientific standpoint as the falling of the walls of Jericho.

The volunteer theorizers ascribed the accident to various causes. One was "positive" that it was due to the use of old and new bricks in the same wall. Another had seen a crack in a part of the wall weeks beforehand and had predicted the catastrophe. Another thought there must have been an explosion of some kind, although there was nothing explosive in the stock of groceries, and no one had heard the report.

But one of the professional investigating committees published a detailed report. They showed by a few brief calculations that the supports of the upper floors and the floors themselves, by the accepted rules for determining the strength of materials, were adapted to a load several times greater than the slender brick piers in the cellar on which the whole fabric above rested. Under the portion which fell these brick piers were crushed to minute atoms,—almost to powder. The piers were apparently annihilated in an instant, and the floors dropped into the void pulling the outer wall in upon themselves.

But this committee forbore to declare that the weakness of these piers was the cause of the accident, although so insufficient in strength. Had the whole building fallen their way would have been clear, but more than half of the building remained erect and unharmed, as perfect apparently as when first built; and as this part was to all appearance just as heavily loaded as the part which fell, and as it rested on slender brick piers precisely similar to those which had been crushed, as far as the committee could determine, there was a natural hesitancy in pronouncing upon the true cause of the disaster.

This hesitancy has been shared by all thoughtful persons who have discussed the matter after all the facts obtainable had been published. According to the recognized data of sound construction the interior supports were barely able to sustain the empty floors, and, as was to be expected, the front half collapsed without warning one still night when only a comparatively light stock of goods had been placed on them.

But the rear portion of the same store, which Messrs. Krafft, Holmes & Co. state was loaded more heavily if anything than the front portion, and which rested on the same insufficient supports below, chose to set at defiance the rules of construction by which cautious architects build, and, contrary to all reasonable expectation, stood firm, stiff, level and true, carrying its load of goods and apparently unshaken by the shock which the fall of the front portion must have caused. The building was six stories high.

It may be remarked in conclusion that in the rebuilding of the fallen portion care has been taken to remove all brick piers throughout, and to substitute stone in their place. Evidently the owners, and the architect who was employed to rebuild, were mistrustful as to how long this rear part might be disposed to manifest defiance of scientific rules by standing firm upon an insufficient support. In the original construction the plans were furnished by a carpenter and builder, no architect having been employed. C. E. ILLSLEY.

AN UNDECIDED COMPETITION.

BRIDGEPORT, CONN., July 24, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Gentlemen,—About three months ago plans were submitted by us and, we presume, by many other architects, in answer to advertisement in your journal by Board of Education of Cleveland, Ohio; but up to present time we have heard nothing more of it and have been unable to learn of decision and award, although we have written to the Clerk of the Board several times. Can you or any of your readers enlighten us on the subject, and oblige us and

SEVERAL COMPETITORS.

NOTES AND CLIPPINGS.

CAIRO.—The citadel of Cairo stands on a steep, rocky bluff above the city, the relative positions of the two being very much those of the Capitol and the lower town at Washington. It was the favorite residence of the famous Egyptian dictator of the last generation, Mehemet Ali Pacha, who strongly fortified it and kept a number of heavy cannon constantly pointed from its walls at the city below, to overawe the disaffection which his iron rule inevitably produced. The walls are still in tolerable repair, and might give some trouble to a force unprovided with heavy siege artillery. Above the ramparts are visible at a considerable distance the tall, slender, white minarets of the Muhammedieh Mosque, built by Mehemet Ali. This is one of the principal ornaments of Cairo, its interior being decorated with a richness of coloring unmatched in the world, except, perhaps, by the Alhambra Palace at Grenada. In front of the main entrance lies a vast paved quadrangle surrounded by a low colonnade, which has acquired a tragic historical renown as the scene of the famous "massacre of the Mamelukes" by order of the pacha. Mehemet, finding in the turbulent independence of these warlike chiefs a formidable obstacle to his cherished scheme of absolute power, invited them to a banquet in the courtyard of the citadel. They rashly accepted the treacherous courtesy, and were suddenly fired upon in the midst of their revel by a detachment of soldiers concealed in the encircling colonnade. All perished save one, the son of the principal chief, who, alone preserving his presence of mind, threw himself upon the ground and succeeded in reaching his horse, which was tied to an adjoining pillar. Springing upon its back, he cut his way through the swarming assailants, and, finding the gates shut against him, took a flying leap from the top of the wall, a height of eighty feet. The horse was killed on the spot, but the daring Mameluke, escaping with a broken limb, crawled away and hid himself before he could be overtaken.—*Exchange.*

SPONTANEOUS COMBUSTION OF LAMP-BLACK.—Fires occurring from spontaneous ignition of vegetable black are very common. Oily rags are most liable to self-ignition during the summer, after a continuance of dry, warm weather. A sudden storm or a shower of rain appears to give life, as it were, to the parched-up matter, and a fire is the result. It has been also noticed that the reverse occurs after a continuance of wet weather. A few days sometimes are sufficient to set up active and rapid combustion, especially among sweepings in paint and oil stores, consisting generally of wood dust, dried vegetable and animal powder-colors more or less saturated with varnish, turpentine, oils, etc. Lamp-black, if packed in a leaky cask when freshly prepared, condenses the atmospheric gases on its surface, which, owing to the porous nature of the substance, is very large in proportion to its weight. In condensation the gases give out a certain amount of heat, which, under favorable circumstances, is sufficient to cause the ignition of some inflammable substance accidentally present, which, by combining with the condensed oxygen, liberates heat enough to cause the ignition of the vegetable black, which, when once started, soon spreads until the contents of the cask become red-hot. This spontaneous ignition is not infrequent in many large carriage factories, and builders' shops have been destroyed solely from this cause. So well is it known now that various devices are adopted to obviate the chances of a disaster. The large firm of Wilkinson, Hayward & Co., London, pack the lamp-black in half-pound packets, done up in brown paper, and then packed in casks. To put it in printed paper would insure ignition, from the absorption of the oil in the printing ink by the lamp-black, generating gas which would soon ignite the soot or lamp-black. One among many instances of well-attested cases of spontaneous ignition occurred at a large carriage works at Grantham, England, in a shop far away from fire, or the chances of a spark. The paint shop was gradually illuminated on a mild summer's evening during daylight. It was noticed through the work-shop windows, and seen to be a tub of loose lamp-black consuming the cask. It was easily carried out onto the grass to finish its work. It was thought that, being near the grinding-paint stone, some oil had been splashed into it, or an oily rag had been dropped into the lamp-black. The secret was soon found out by the pallet-knife being found among the ashes of the cask, having been carelessly dropped in with some wet paint on it; or even without any wet paint; the dry, oily paint which accumulates on the blade, near the handle, would be sufficient to cause ignition. It is not the large quantity of oil, but the small quantity, which is the cause of it. This is so well known that some coach-makers, when they receive lamp-black, put it into a sound cask, and pour enough linseed oil into it to saturate the whole.—*The English Mechanic.*

THE SALE OF BARON GRANT'S MANSION.—The New York Times says that "in the proposed method of sale of Baron Grant's mansion at Kensington is something new. It is to be an absolute dispersion. It is not to be sold in block, but in fragments. As it was raised in a fairy-like manner, Aladdin-wise, it is to depart and disappear off the earth's surface in an equally magical way. It was a house symbolic of that prodigality which comes from stock jobbery, and possibly it is not the only type of this particular style the world has seen. Within its walls are 52 richly carved and sculptured pieces of statuary and marble mantelpieces. There are two grand marble staircases, with marble landings, caryatides in flocks, countless Corinthian columns (designated per catalogue as "noble"), 10,000 feet of marble flooring and dados, 70 squares of oak wainscot and parquetry flooring, 18 baths, and innumerable lamps on granite plinths. Everything is offered for sale bit by bit, and objects are specially described as being parts of the ball-room, the Swiss chalet, picture-gallery, blue and yellow drawing-rooms, lobby, ladies' morning-rooms, cloak-rooms, billiard-rooms, library, and banqueting halls. Had that greatest of all English auctioneers, Robins, been alive, he who bid off Strawberry Hill, what a gorgeously grandiloquent advertisement would have been forthcoming! There is, however, a consolation to both the builder and the public in this method of annihilation. The chagrin of the first must diminish, for no single stone indicative of his folly can remain, and as to the public, the moral is taught that riches dishonestly gained are rarely lasting. It is by no means impossible that this English method of sale will find its adapters in this country, for history always repeats itself." A later issue further states that the "two marble staircases, with their lower landings supported by caryatides representing the seasons, and for which a few years ago he is declared to have paid \$55,000, sold at the auction for \$5,000, and the purchaser of them was Mme. Tussaud! Further items in the sale are given as follows: Four pairs of Italian marble fluted Corinthian columns in the hall, which cost \$5,000 per pair, sold for \$500 per pair; the marble terrace at the rear of the mansion sold for \$685; the marble inlaid flooring of the hall realized \$375; the four pairs of fluted Italian marble Corinthian columns in the ball-room, which the auctioneer stated cost \$5,000 per pair, sold for \$600 per pair. Among other good prices obtained were \$210 for the conservatory; \$350 for the parquetry flooring of the ball-room, and \$200 for the ornamental cast-iron grating round the room; \$105 for an antique marble chimney-piece; \$365 for the parquetry flooring, and \$145 for the cast-iron grating round the picture-gallery; \$250 for a handsome statuary marble chimney-piece in the blue drawing-room, and \$310 for a similar chimney-piece in the yellow drawing-room. The total proceeds of the day's sale amounted to \$17,500, which, with the sum received from the previous day's sale, brings the sum already received up to \$30,000. As only two more days remained for the sale, the total proceeds are not likely to give more than a bagatelle of what these portions of the colossal mansion originally cost."

A SELF-WINDING CLOCK.—At the Paris Exhibition of 1878, Mr. A. Dardenne, a Belgian, exhibited the model of a self-winding clock, which has since been improved in such a manner as to merit further notice. A specimen clock was fixed at the Gare du Nord Terminus, Brussels, last September, and after six months' trial it was found to agree exactly with the Observatory clock, not having varied in the least during that time. The clock is wound by a small wind-mill, which is placed in a ventilation pipe, chimney, or any other place where a tolerably constant current of air can be relied on. This wind-mill is, by a reversed train of multiplying wheels, continually drawing over a wheel an endless chain, in one loop of which the clock-weight is supported. As the loop hangs between the clock and the winding-machine, the weight is continually drawing through the clock the slack chain drawn up by the wind motor, and thus a constant motion is maintained. A ratchet wheel prevents the motor from turning the wrong way, and, by a simple arrangement, whenever the weight is wound right up to the top, the motion is checked by a friction brake automatically applied to the driving mechanism. When the weight is thus raised to the top, sufficient energy is stored to insure the proper working of the clock for about twenty-four hours, and it will therefore be seen that a perfectly regular current of air is not essential. It is said that Mr. Dardenne is now supplying these clocks for domestic purposes, and their freedom from disturbance and ease of management are arguments in favor of their adoption.—*Journal of the Society of Arts.*

POMPEY'S PILLAR.—Although Alexandria has lost her obelisk she still retains another monument of almost equal historical value, though inferior antiquity, for which many a scientist must be trembling at this moment. Quitting Alexandria by the eastern gate, you see before you on a low rising ground a tall, slender column of red granite, 95 feet in height, of a form and finish unmistakably Grecian. This is the famed "Pompey's Pillar" of European guide-books, which give many ingeniously erroneous explanations of its peculiar name. In reality it seems to have had no connection with Cæsar's ill-fated rival beyond the somewhat remote one of his having been murdered near the spot. Professor Kingsley was probably right in asserting it to be the sole survivor of the 400 columns of the Serapeion, or great Temple of Serapis. It is an object of curiosity with tourists of all lands, and Arab peddlars are always hovering around it with "authentic" fragments of granite from its base, enough of which have been sold, not merely to make another column of equal size, but to build the whole Serapeion over again. Some years ago a party of roystering British Blue-jackets from a man-of-war in the harbor conceived the idea of celebrating the anniversary of Trafalgar by scaling the pillar and emptying a can of grog on its top in honor of Admiral Nelson. They accomplished their purpose by means of a large kite with a rope attached to it, and having enjoyed their aerial picnic for more than an hour, descended safely amid the shouts of several thousand Arabs, who had assembled to witness the feat.—*New York Times.*

BUILDING INTELLIGENCE.

(Reported for The American Architect and Building News.)

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

BUILDING PATENTS.

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

260,738. KITCHEN-RANGE HOT-WATER RESERVOIR. — Edward Bourne, Allegheny, Pa.
260,743. TAP-WRENCH. — Malcolm Campbell, Holyoke, Mass.
260,755. ADJUSTABLE PITCH-BOARD FOR SQUARES. — Chas. W. Hovis, Clintonville, Pa.
260,771. MONKEY-WRENCH. — Charles H. Miller, Erie, Pa.
260,777. PIPE-VISE. — Thomas Patton, Chicago, Ill.
260,793. DRAINAGE-APPARATUS. — Chas. Shinkle, Covington, Ky.
260,794. AUTOMATIC GATE-OPENER FOR ELEVATORS. — John F. S. Smith, Chicago, Ill.
260,795. SCREW. — Levi Smith, Tidouette, Pa.
260,803. ARTESIAN VACUUM-WELL. — David H. Tichenor, Newark, N. J.
260,816. DIP-TRAY FOR WATER-CLOSETS. — Frederick Adee, Brooklyn, N. Y.
260,872. SHINGLING-BRACKET. — Luther C. Jaques, Rock Rapids, Io.
260,873. SASH. — George H. Johnson, Bridgeport, Conn.
260,878-879. FIRE-ANNIHILATOR. — Isidor Kitsee, Cincinnati, O.
260,934. LATCH. — John Brownlee, Evansville, Ind.
260,932. FLUSHING-VALVE. — John Demarest, New York, N. Y.
260,933. WATER-CLOSET. — John Demarest, New York, N. Y.
260,965. WATER-CLOSET. — Joseph J. B. Frey, New York, N. Y.
260,966. PLUMBER'S COUPLING FOR THE BOWLS OF WATER-CLOSETS. — Joseph J. B. Frey, New York, N. Y.
260,967. SLOP-SAFE FOR WATER-CLOSETS. — Joseph J. B. Frey, New York, N. Y.
260,973. COMPOUND FOR GRADING WOOD. — John T. Greenwood, Jr., Beloit, Wis.
260,983. FIRE-EXTINGUISHER. — Isidor Kitsee, Cincinnati, O.
260,997. AUGER. — Solomon Kuhlman, Canton, O.
260,998. AUTOMATIC FIRE-EXTINGUISHER AND ALARM. — Clemens Kupka, Phillipsburg, N. J.
261,002. FIRE-ESCAPE. — Henry A. Lee, New York, N. Y.
261,004. FIRE-ESCAPE. — Andrew Swanson, New York, N. Y.
261,075. FIRE-ESCAPE. — Sarah Toner Bart, Washington, D. C.
261,080. SEWER AND MEANS FOR FACILITATING THE DISCHARGE OF SEWAGE. — John Comstock, Hudson, Wis.
261,101. SAFETY DEVICE FOR ELEVATORS. — Casius C. Palmer, Oakland, Cal.
261,119. WATER-FILTER. — Samuel Adams, Milwaukee, Wis.
261,121. FIRE-ESCAPE. — Francis A. A'Neals, Topeka, Kan.
261,133. ELEVATOR-HATCHWAY GUARD. — Joseph Byers, Newton, and George Taylor, Everett, Mass.
261,137. FIRE-ESCAPE. — Gustave J. Crikelaar, New York, N. Y.
261,150. HINGE. — Jas. E. Gowen, Peabody, Kan.
261,155. STOP-COCK INJECTOR FOR WATER-CLOSETS, ETC. — William L. Horne, Meriden, Conn.
261,158. FIRE-ESCAPE LADDER. — Frank G. Johnson, Brooklyn, N. Y.
261,202. CEILING. — James Budd, Boston, Mass.
261,217. PIPE-WRENCH. — Albert F. Field, Farmington, N. H.
261,221. ADJUSTABLE BLOWER FOR FIREPLACES AND STOVES. — Geo. W. Geissenhainer, Pittsburg, Pa.
261,227. DWELLING. — Benjamin R. Hawley, Chicago, Ill.
261,238. FIRE-ANNIHILATOR. — Isidor Kitsee, Cincinnati, O.
261,267. HEATING AND DRYING APPARATUS FOR LAUNDRIES. — Chester L. Smith, Norristown, Pa.
261,286. ELEVATOR-SHAFT. — Samuel W. Willard, West De Pere, Wis.
261,291. VENTILATOR FOR WINDOWS. — Samuel K. Addoms, Brooklyn, N. Y.
261,338. HAMMER. — Christopher J. Grellner, St. Louis, Mo.
261,358. WATER-CLOSET MECHANISM. — David S. Keith, Toronto, Ontario, Can.
261,382. INSIDE WINDOW-BLIND. — Robert Plisak, Cleveland, O.
261,398. CHIMNEY-TOP. — Lewis C. Smith, Berlin, Wis.
261,404. VENTILATOR. — Alexander B. Summers, Brooklyn, N. Y.
261,451. DEVICE FOR VENTILATING SOIL-PIPES. — John D. Harrington, Auburn, N. Y.
261,475. FIRE-EXTINGUISHING AND ALARM APPARATUS. — Wm. Neracher, Cleveland, O.
261,486. PIPE-WRENCH. — John E. Sanders, Indianapolis, Ind.
261,487. DOOR-BALANCE. — William F. Sexton, Sr., and Wm. F. Sexton, Jr., Toronto, Ontario, Can.

SUMMARY OF THE WEEK.

Baltimore.

DWELLING. — Mr. Chas. Rous, n w cor. Biddle and Calvert Sts., 22' x 85', to be built of brick, with stone finish, three-sty and an attic; probable cost, \$20,000; Messrs. Smith & Bros., builders; Messrs. J. A. and W. T. Wilson, architects.
BUILDING PERMITS. — Since our last report nineteen

permits have been granted, of which the more important are as follows: —

L. H. Robinson, 15 three-sty brick buildings, Barclay St., between Lanvale and Townsend Sts.
L. H. Robinson, 5 three-sty brick buildings, Lanvale St., between Greenmount Ave. and Barclay St.
L. H. Robinson, 10 two-sty brick buildings, Carter Alley, between Lanvale and Townsend Sts.
A. T. Abrams, 2 three-sty brick buildings, Broadway, commencing at a w cor. of Miller St.
Julius Hines, one-sty brick building, in rear of s e cor. Gay and Exeter Sts.
Johns Hopkins Estate, two-sty brick building, Gellingham Alley, between Sharp and Howard Sts.
Geo. C. Herchman, 6 two-sty brick buildings, Madeira Court, between Choptank St. and Madeira Alley.
F. H. Seidlch, two-sty brick stable, Raborg St., w of Arch St.
T. R. Sherwood, three-sty brick building, Chester St., n of Baltimore St.
John Butler, two-sty brick building, Marshall St., between Winder and Wells Sts.
John Parks, two-sty brick building, Marshall St., between Winder and Wells Sts.
Geo. L. Krebs, 2 two-sty brick buildings, Dallas St., between Fayette and Mulliken Sts.
Chas. W. Rockefeller, 8 three-sty brick buildings, Mount St., beginning at the s w cor. of Presstman St.
Chas. W. Rockefeller, 5 three-sty brick buildings, Presstman St., beginning at the s e cor. of Bruce Alley.

Brooklyn.

BUILDING PERMITS. — St. John's Pl., n s, 224' 7" e Sixth Ave., 2 three-sty brownstone dwells.; cost, each, \$10,000; owner, architect and builder, Thomas Green, 195 Sixth Ave.
North Twelfth St., s w cor. Second St., one-sty frame glass-works; cost, \$3,750; owner, Francis Storm, on premises; architect, E. E. Gaylor; builder, J. Monzani.
Pulaski St., s s, 400' w Marcy Ave., 7 two-sty frame dwells.; cost, each, \$3,000; owner, architect and builder, Daniel B. Norris, 359 Clifton Pl.
Grand Ave., n e cor. Lefferts Pl., brick church; cost, \$8,000; owners, Trustees First Universalist Soc.; architect, L. B. Valk; builders, J. M. Brown & — McRae.
Floyd St., s s, 175' e Sumner Ave., 3 three-sty frame tenements; cost, each, \$1,500; owner and mason, Geo. Straub, 315 Floyd St.; carpenter, J. Rueger.
Central Ave., e s, 10' s Jefferson St., 2 three-sty brick tenements; cost, each, \$5,000; owner, Leonard Eppig, Central Ave. and George St.; architect, J. Platte; builder, H. Zweng.
Grand St., n e cor. Seventh St., three-sty brick building for business purposes and halls above; cost, \$25,000; owners, Messrs. Higgins Bros., on premises; architect, E. F. Gaylor; mason, M. Smith.
Sterling Pl., s s, 104' 7" s Sixth Ave., 6 four-sty brownstone tenements; cost, each, \$4,500; owner, architect and builder, G. W. Brown, 728 Fulton St.
Nevins St., s w cor. Sackett St., one-sty brick gas-house; cost, \$16,000; owner, Fulton Municipal Gas Co., 342 Fulton St.; architect, J. F. Harrison; builder, R. Deever.
Greeneport Ave., s s cor. Jewell St., three-sty frame factory; cost, \$5,000; owners, Young & Gerard, 153 Manhattan Ave.; architect, G. H. Gerard; builder, Thos. Davis.
Norman Ave., s e cor. Lorimer St., 3 two-sty and basement frame dwells.; cost, \$10,300; owner, W. F. Corwish, 55 Greeneport Ave.; architect, Frederick Weber; builders, I. & J. Van River and Stephen M. Randall.
Ninth St., s w cor. Eighth Ave., 10 three-sty brownstone flats; cost, \$5,000 each; owner, Daniel Duddy, cor. Fifth Ave. and Prospect St.
Fulton St., No. 518, three-sty sandstone store; cost, \$12,000; owners, Wm. Herries & Sons, 526 Fulton St.; architect, R. B. Eastman; builders, James Ashfield & Son and Morris & Selover.

Boston.

HOUSES. — Messrs. Allen & Kenway of Boston are architects of 2 houses for Mr. J. J. French and Mrs. Stratton, on Commonwealth Ave. They are to be built of brick, with stone finish, measuring 26' x 65' each, four-sty; J. Smith, mason, and Leander Greeley, carpenter.
STABLES. — Extensive alterations are being made to the Riverside Club stable, on Chestnut St.; Messrs. Rotch & Tilden, architects.
BUILDING PERMITS. — Brick. — Bedford St., Nos. 57-63, and 51-63 Kingston St., Ward 10, for Fred. S. Ames, six-sty mercantile, 80' x 158' and 226'; Messrs. Norcross Bros., builders.
West Fourth St., cor. D St., Ward 13, for John P. Mullen, three-sty dwell., 20' x 38' 4"; John P. Mullen, builder.
West Fourth St., Nos. 303-303A, 2 three-sty dwells., 20' x 38' 4"; John P. Mullen, builder.
Lenox St., No. 92, Ward 19, for Union Carpet Co., manufactory, 20' x 8'; J. W. Clark, builder.
Wood. — Marginal St., near Jeffries St., Ward 2, for Simpson Dry Dock Corp., storage, 20' x 65'; Wm. C. Chick, builder.
Beaumont St., near Carruth St., Ward 24, for Annie F. Carruth, two-sty dwell., 27' x 39'; Haddock & Son, builders.
East Ninth St., near Douglass St., Ward 14, 2 two-sty dwells., 20' x 32'; for Geo. Martin; John Bertram, builder.
Florence St., n s, near Poplar St., Ward 23, for Edwin Coleman, dwell., 22' x 96' 6"; Alexander Rogers, builder.
L St., near East Fourth St., Ward 14, for Christopher Blacke, 2 two-sty and mansard dwells., 17' x 28'; Clark & Lee, builders.
Park St., near Millett St., Ward 24, for Rodney W. Greenleaf, two-sty dwell., 17' 6' x 46'; N. F. Berry, builder.
Washington St., rear of near Keyes St., Ward 23, for M. Denman Rose, mercantile, 100' x 210'; Wm. Carpenter, builder.
Pratt St., near Linden St., Ward 25, for David Bramer, two-sty hip dwell., 22' x 28'; D. F. Cameron, builder.

Chicago.

OFFICE-BUILDINGS. — Messrs. Mortimer & Tappan have plans nearly completed for a large eight-sty office-building on La Salle St., between Monroe and Adams St., to cost \$125,000.
Chas. Counselman will also build an eight-sty office-building, on the n w cor. of La Salle and Jackson Sts.
Burnham & Root are the architects for both these buildings.
BUILDING PERMITS. — Derby & Pond, brick basement, 24' x 51', 71 McGregor St.; cost, \$2,600.
F. Petersdorf, two-sty brick store and dwell., 21' x 52', 330 Huribut St.; cost, \$3,000.
Henry M. Gurn, two-sty brick dwell., 41' x 45', Osborne St., near Ohio St.; cost, \$4,600.
Thomas Morris, two-sty and basement brick store and dwell., 25' x 33', 252 Ogden St.; cost, \$3,000.
M. Sullivan, two-sty and basement brick dwell., 20' x 42', 237 Oak St.; cost, \$5,000.
H. T. Mullen, two-sty and basement brick dwell., 20' x 48', 235 Oak St.; cost, \$6,000.
A. Blake, three-sty brick flats, 25' x 65', 628 W. Monroe St.; cost, \$7,000.
John Studebaker, 5 two-sty and basement brick dwells., 40' x 102', 693 to 697 Sedgwick St.; cost, \$16,000.
E. Grom, three-sty and basement brick store and dwell., 24' x 65', 909 Milwaukee Ave.; cost, \$5,500.
G. Strobach, two-sty and basement brick dwell., 19' x 45', 51 Hobbs St.; cost, \$3,000.
W. A. Williams, two-sty brick dwell., 22' x 48', 18 Lincoln St.; cost, \$3,400.
H. Sten, Stolhaske & Thurnborn, three one-sty brick cottages, 20' x 40' each, 3534 to 3542 Marshfield Ave.; cost, \$2,800.
Vac. Jachimschal, two-sty and basement brick dwell., 21' x 60', 401 Twenty-sixth St.; cost, \$4,600.
H. Copeland, 3 two-sty and basement brick stores and flats, 32' x 50', 933 West Madison St.; cost, \$5,500.
Mrs. E. L. Carswell, three-sty and basement flats, 25' x 45', n w cor. LaSalle and Erie Sts.; cost, \$5,000.
A. P. Larson, three-sty brick flats, 43' x 47', 391-393 West Huron St.; cost, \$6,000.
A. O. Slaughter, six-sty and basement brick warehouse, 40' x 160', Wabash Ave., n of Congress St.; cost, \$55,000.
Jacob Kramer, three-sty and basement brick dwell., 45' x 67', 513 and 515 Congress St.; cost, \$7,000.
E. Jennings & Co., six-sty brick stores and factory, 89' x 100', 399 to 405 West Madison St.; cost, \$35,000.
D. W. Potter, three-sty and basement brick flats, 50' x 67', 849 to 853 West Madison St.; cost, \$18,000.
N. C. King, two-sty brick flats, 24' x 60', 1042 Wilcox Ave.; cost, \$4,000.
W. C. Willing, three-sty and basement brick flats, 24' x 80', 873 West Madison St.; cost, \$7,000.
Otto Westerholm, two-sty and basement brick store and dwell., 20' x 40', Milwaukee Ave. and Clinton Sts.; cost, \$2,500.
Courat Dewitz, two-sty brick dwell., 21' x 52', 3423 Dearborn St.; cost, \$4,000.
Owen F. Aldis, three-sty brick dwell., 20' x 43', 24 Walton Pl.; cost, \$6,000.
Samuel J. hneston, three-sty and basement brick stores and flats, 70' x 70', 551 and 553 Blue Island Ave.; cost, \$25,000.

Cincinnati.

STRIKE. — The boiler-makers who have been out on a strike for the past six weeks returned to work on the 17th inst., at an advance of ten per cent over former wages.
WORK-HOUSE. — Mr. Henry Bevis has prepared plans for an addition of a new dining-room and hospital to the Cincinnati work-house. The different contracts were awarded on the 18th inst., total cost, \$15,000.
HOUSES. — Mr. Geo. W. Rapp is preparing plans for remodelling residence of Lewis Manns, on Laurel St., to cost \$4,000.
Also a residence for Dr. J. W. Gradon, on Kemper Lane, Walnut Hills; cost, \$10,000.
FLATS. — Messrs. G. & H. Muhlhauer have commenced a five-sty building, 60' x 90', n w cor. of Court and Main Sts., to be used for stores and flats; cost, \$40,000; Geo. W. Rapp, architect.
FACTORY. — The Butcher's Melting Association are to build a brick building, 60' x 100', at n w cor. of Findlay St. and Central Ave., from plans prepared by Geo. W. Rapp.
ADDITION. — Dr. N. B. Wolfe is to build addition to his residence, No. 160 John St.; cost, \$3,000; Chas. Crapsey, architect.
ALTERATION. — Dr. T. A. Reamy is to remodel building, n e cor. of Fourth St. and Central Ave., for suit of offices; cost, \$4,500; Chas. Crapsey, architect.
BUILDING PERMITS. — Since our last report the following permits have been issued: —
Harris & Co., Sixth Presbyterian Church, Eastern Ave., near Woodburn St.; cost, \$9,000.
Henry Gentrap, 2 three-sty brick dwells., Race St., near Fifteenth St.; cost, \$7,000.
Bon Thalaun, three-sty brick dwell., Longworth St., near Mount St.; cost, \$5,000.
Mr. Walt, 2 three-sty brick dwells., Linn St., near Court St.; cost, \$4,600.
R. Antenreith, three-sty brick dwell., Poplar St., near Western Ave.; cost, \$4,500.
Russell, Morgan & Co., six-sty brick dwell., cor. of Sixth St. and Eggleston Ave.; Henry Bevis, architect; cost, \$60,000.
James Anderson, 2 four-sty brick dwells., Race St., near Fifteenth St.; cost, \$10,000.
Dr. W. G. Orr, two-sty brick dwell., Woodburn Ave., near Clay St.; cost, \$5,000.
L. Burchard, 2 two-sty brick dwells., n w cor. Auburn Ave. and McMillan St.; cost, \$10,000; J. W. McLaughlin, architect.
J. Weist, three-sty brick dwell., Western Ave., near Liberty St.; cost, \$5,000.
Wm. Boedemer, three-sty brick dwell., Findlay St., near Freeman St.; cost, \$6,000; G. W. Rapp, architect.
Geo. Koch, three-sty brick dwell., No. 76 Harrison Pike; cost, \$5,000.
Nine permits for repairs; cost, \$4,200.

New York.

BUILDING OPERATIONS.—There is comparatively nothing new being started in the way of fresh building projects, and the architects generally are taking things easy during the "dog days." In regard to fall work there is a strong feeling that an unprecedented amount of work will be started before winter, and there is every indication of a very strong real estate market.

BUILDING PERMITS.—*West Twenty-ninth St., Nos. 204 and 206*, two-story brick stable; cost, about \$9,000; owner, Joseph Merklein, 213 West Fifty-eighth St.; architect, E. E. Kahl; builders, Jacob Vix & Son and Meeker & Hedden.

Forsyth St., Nos. 79 and 81, three-story brick store and stable; cost, \$9,000; owners, Lord & Taylor, Grand St., cor. Chrystie St.; builder, Wm. Sternkopf.

First Ave., No. 1331, four-story brick tenement; cost, \$9,000; owner, George Nuse, 756 Second Ave.; architect, Wm. Graul; builders, J. & J. G. Schneckenbecker.

Fifth Ave., s. e. cor. Twenty-eighth St., eleven-story brick apartment-house, stone and terra-cotta trimmings; cost, \$428,000; owner, Knickerbocker Apartment Co., R. S. Hone, President, 153 Broadway; architect, C. W. Clinton; builder, D. H. King, Jr.

Ninth Ave., n. w. cor. One Hundred and Twenty-sixth St., 4 four-story brick tenements; cost, each, \$12,000; owner, David Mulreйн, 317 West One Hundred and Twenty-fifth St.; architect, R. Rosenstock.

Sixtieth St., n. s. 175' w. Tenth Ave., 2 five-story brownstone tenements; cost, each, \$15,000; owner, Julia Mullaly, 338 West Fifty-ninth St.; architect, C. F. Ridder, Jr.; builder, not selected.

Boulevard, w. s. 60' s. One Hundred and Eleventh St., 2 two-story brick dwellings; cost, each, \$2,500; owner, Moses Sahlein, et al., 88 West Broadway; architect, E. F. Haight; builders, Haight & Monnia.

Eighty-first St., s. s. 183' e. Fourth Ave., 2 five-story Connecticut brownstone tenements; cost, each, \$20,000; owner, Mary F. Morris and Mary Cahill, 5 Sutton Pl.; architect, J. H. Friend.

East Eighty-sixth St., Nos. 309 to 323, inclusive, 8 four-story brick dwellings, stone trimmings; total cost, \$73,000; owner, Wm. Rhineland, trustee, 155 West Fourteenth St.; architect, Geo. M. Huss; builders, Cornelius Callahan and G. C. Moore.

West St., No. 304, five-story brick store; cost, \$7,000; owner, E. Long, by E. Yard, attorney; architect, W. H. Smith; builder, Wm. W. Owens.

Forty-ninth St., s. s. 375' w. Ninth Ave., 2 five-story brick and brownstone tenements; cost, each, \$12,000; owner, Eliz. Seitz, 84 East One Hundred and Eighth St.; architect, W. S. West; builder, C. Seitz.

Ninety-fifth St., s. s. 205' e. Third Ave., two-story brick stable; cost, \$8,000; owner, Terence Farley, 161 East Sixty-first St.; architect, C. J. Farley; builder, day's work.

Westchester Ave., n. s. 100' w. Brook Ave., three-story brick dwellings; cost, \$3,400; owner, Samuel G. Douglass, Westchester Ave.; builders, George Mand and Haffen & Mooney.

West St., Nos. 47, 48 and 49, eight-story brick soap-factory; cost, \$45,000; lessee, B. F. Babbitt, 74 to 86 Washington St.; architect, Wm. Graul.

Madison Ave., No. 781, five-story granite and brick flat; cost, \$18,000; owners and architects, D. & J. Jardine, 1282 Broadway; builder, Alex. Brown, Jr.

Eleventh Ave., s. w. cor. Thirty-fourth St., two-story brick store; cost, about \$14,000; owner, N. Y. C. & H. K. R. R., Grand Central Depot; builders, Blescker & Hedden; superintendent, J. Richardson.

East One Hundred and Twenty-first St., No. 104, four-story brick tenement; cost, \$15,000; owner and builder, Thomas Fealey, 200 Third Ave.; architect, B. Walther.

West One Hundred and Twenty-eighth St., Nos. 24 and 26, seven-story brick flats; cost, each, \$75,000; owner, Annie Fettech, 950 Park Ave.; architects, Cleverdon & Putzel.

ALTERATIONS.—*East Thirty-fifth St., No. 157*, two-story brick extensions; cost, \$3,500; owner, Morris K. Jessup, 17 Madison Ave.; builders, McKenzie & McPherson.

Second Ave., No. 110, one-story extension; cost, \$3,000; owners, Women's Union Assoc. and Home, on premises; builder, J. J. Tucker.

Sullivan St., No. 24, three-story brick extension; cost, \$7,000; owner, Samuel Cohen, Long Branch, N. J.; architects, Berger & Baylies; builders, J. Hankinson & Alex. Leslie.

Madison Ave., n. e. cor. One Hundred and Twenty-sixth St., rear raised 6', new windows, etc.; cost, \$5,000; owner, De Witt C. Weeks, Chairman Board of Trustees, Mott Ave. and One Hundred and Sixty-fourth St.; architect, A. Crooks; builder, not selected.

First Ave., No. 105, two-story extension, also interior alterations; cost, \$3,500; owner, Ernest Ohl, 56 Second Ave.; architect, F. W. Klement.

Liberty St., No. 148 and No. 111 Cedar St., repair damage by fire; cost, \$4,000; owner, Edward A. Pearson, Superintendent, etc., 120 Broadway, Superintendent MacLay & Davies; builder, S. J. Acken.

Centre St., Nos. 63 and 65, rebuild walls, front altered, etc.; cost, \$5,000; lessees, Colwell Lead Co.; builder, E. Smith.

East Seventy-fifth St., Nos. 116 and 118, raised one story, front altered, etc.; cost, \$8,000; owner, John Nesbit, 213 Lexington Ave.; architect, J. E. Ware; builder, F. Nesbit.

Philadelphia.

FACTORY.—On the n. s. of Naudain St., between Twentieth and Twenty-first Sts., Richard Kerhaw will build a five-story factory, 60' x 130'; J. F. Stuckert, architect.

STORES.—Elliston P. Morris is about to build, at Nos. 715 and 719 Arch St., a five-story building, 65' 6" x 130'. The first-story front will be of iron; second, third and fourth stories will be of pressed and ornamental brick, with Hammett brownstone and terra-cotta finish; Yarnall & Cooper, contractors; J. K. Yarnall, architect.

OFFICE-BUILDING.—The old "Record" building at the s. w. cor. of Third and Chestnut Sts. is to be remodelled and an office-building made of same, from plans by Willis G. Hale, architect.

ALTERATION.—Alteration and addition to dwell., at

2211 Green St., and new stable on Twenty-third St., below Green St., for G. Burnham, Esq.; Wilson Bros. & Co., architects.

Alteration and addition to dwell., No. 3807 Chestnut St., for Frank McLaughlin, Esq.; Wilson Bros. & Co., architects.

HOUSE.—Mr. T. F. Mende is erecting a four-story dwell., 23' x 107', front to be of brownstone; cost, \$25,000; J. K. Yarnall, architect.

BUILDING PERMITS.—*Broad St., w. s. s. of Toga St.*, three-story dwell., 14' x 28'; Thos. A. Barlow, owner.

Penn St., s. w. cor. Ararat St., three-story dwell., 20' x 59'; W. R. Brown, contractor.

Belgrade St., No. 445, three-story dwell., 18' x 49'; David Emerick, contractor.

Hancock St., w. s. n. of Diamond St., three-story dwell., 20' x 60'; Jas. A. O'Donnell, contractor.

Spring Garden St., s. s. e. of Thirty-second St., 15 two-story dwellings, 14' x 35'; Elkins & Peters, owners.

Mechan Ave., n. s. between Main and Masgrove Sts., 2 three-story dwellings, 15' x 32'; Wm. Irwin, contractor.

Filbert St., No. 341, one-story foundry, 40' x 50'; Jas. Bing, owner.

Germantown Ave., No. 4936, two-story stable, 30' x 100'; Edward Kolb, owner.

Riggs St., s. s. between Twenty-seventh and Twenty-eighth Sts., two-story stable, 30' x 48'; P. F. Riley, owner.

Bridge St., s. s. w. of Trenton Railroad, three-story dwell., 22' x 60'; Jno. Zoell, contractor.

Morris St., No. 410, three-story dwell., 16' x 30'; Chas. Zihn, owner.

Sixth St., n. w. cor. Diamond St., 2 three-story dwellings, 18' x 60'; Shegog & Quigley, contractors.

Arch St., No. 1114, brick building and front alterations, 20' x 77'; Andrew White, contractor.

Eighth St., n. w. cor. Arch St., four-story store, 60' x 100'; L. Koder, contractor.

Forty-second St., n. w. cor. Oregon St., 2 two-story dwellings, 14' x 28'; Jno. Goldbeck.

Duy's Lane, between Chew St. and Rubicam Ave., three-story dwell., 40' x 90'; Jno. Armstrong, contractor.

Richmond St., cor. Allegheny Ave., second, third and fourth story addition to factory, 35' x 130'; Boeder, Adamson & Co., owners.

Bodine St., No. 141, 2 two-story dwellings, 18' x 30'; G. Specht, contractor.

Walter St., s. s. w. of Seventeenth St., one-story school-house, 18' x 32'; A. W. Haines, contractor.

Clearfield St., n. s. e. of Kensington Ave., three-story dry-house, 16' x 32'; W. Dickson & Bro., contractors.

Oxford St., s. w. cor. Randolph St., two-story factory, 23' x 34'; G. Kindsvater, owner.

Twenty-third St., s. s. s. of Thompson St., 6 two-story dwellings, 14' x 41'; Jas. H. Lyons, contractor.

North College Ave., n. s. e. of Twenty-third St., 9 two-story dwellings, 17' x 44'; Dan Devlin, contractor.

Cumberland St., s. e. cor. Almond St., 5 three-story dwellings, 72' x 159'; C. J. Heppie, owner.

St. Louis.

BUILDING PERMITS.—Fifty-eight permits have been issued since our last report, fourteen of which are for unimportant frame houses. Of the rest, those worth \$2,500 and over are as follows:—

D. R. Garrison, 6 two-story dwellings; cost, \$22,000; T. J. Furlong, architect; J. D. Fitzgibbons, contractor.

M. Shields, 3 two-story dwellings; cost, \$8,000; G. Huson, contractor.

C. McGuerney, two-story dwell.; cost, \$2,500.

Thos. F. Colser, 3 two-story dwellings; cost, \$7,800; Mills, architect; Alex. McAllister, contractor.

Missouri Fire-brick and Clay Co., two-story manufactory; cost, \$3,000.

Jno. O. Boyle, two-story dwell.; cost, \$3,000; Meagher, architect; contract sub-let.

H. Danner, two-story dwell.; cost, \$3,000; Wm. Springmeyer, contractor.

John McMahon, two-story dwell.; cost, \$2,650; H. Redmond, contractor.

J. M. Hutton & Co., four-story store and office; cost, \$12,300; W. G. Hegel, contractor.

Jno. H. Pohlmann, two-story dwell.; cost, \$4,800; H. C. Brinkman, contractor.

J. Winklemeyer Browning Association, brewery; cost, \$25,000; E. Jungeneid, architect; contract sub-let.

O'Fallon Estate, two-story store and tenement; cost, \$15,300; B. P. McClure, contractor.

Washington.

BUILDING PERMITS.—The following are the permits issued since last report:—

John P. Andressar, three-story and basement brick dwell., 23' 3" x 36', cor. Seventh and K Sts., n. w.; cost, \$3,500.

Fourth Baptist Church, R. St., between Twelfth and Thirteenth Sts., n. w., two-story building, 65' x 110'; cost, \$25,000.

Oliver Cox, 4 two-story brick dwellings, 15' x 58', Third St., between I and K Sts., n. w.; cost, \$6,500.

Columbia College, three-story and basement school-building, 50' x 53', H St., between Thirteenth and Fourteenth Sts., n. w.; cost, \$15,600.

PROPOSALS.

COUNTY INFIRMARY. [At Evansville, Ind.]

Sealed proposals will be received at the office of the Auditor of Vanderburgh County, Evansville, Ind., up to 1 P. M., August 12, 1882, for furnishing all materials and work required to erect and finish complete a county infirmarium-building, to be built on the farm recently purchased by the county, in accordance with the plans and specifications on file in the Auditor's office of said county.

Bidders will be required to give satisfactory security, as the law requires, for the faithful performance of contract.

Proposals shall be made upon blanks furnished by the Auditor, and indorsed "Proposal for County Infirmary."

County Commissioners reserve the right to reject any and all bids. WM. WARREN, A. V. C.

PROPOSALS.

TIMBER, ETC. [At Washington, D. C.]

NAVY DEPARTMENT,
BUREAU OF CONSTRUCTION AND REPAIR,
WASHINGTON, D. C., July 12, 1882.

Sealed proposals to furnish timber and other materials for the Navy for the fiscal year ending June 30, 1883, will be received at this Bureau until 12 o'clock, M., the 8th of August next, at which time the bids will be open.

The proposals must be addressed to the "Chief of the Bureau of Construction and Repair, Navy Department, Washington," and must be indorsed "Proposals for timber, etc., for the Navy," that they may be distinguished from ordinary business letters.

Printed schedules of the various yards, with instructions to bidders, forms of offers and other information can be obtained on application to the Purchasing Paymaster or Commandants of the respective navy-yards, or to the Bureau of Construction and Repair, Navy Department.

No contracts will be awarded until after appropriations to cover the same have been made by Congress and been duly approved.

T. D. WILSON, Chief Constructor U. S. Navy,
Chief of Bureau of Construction and Repair.

BOARD OF TRADE BUILDING.

[At Chicago, Ill.]

Sealed proposals will be received by the Board of Real Estate Managers of Board of Trade of the City of Chicago at their office 211 La Salle St., up to noon of August 1, 1882, for all of the cut-stone or granite laid in the wall required in the construction of their building. The building will be 174' x 225', with a height of about 140'. The stone-work of the first story to be completed the present building season, and the entire stone-work to be finished by October 1, 1883. Proposals may be made for granite (one or two shades) or for sandstone or limestone. Drawings, details and specifications may be seen at the office of Nathaniel T. Bradlee, Pemberton Square, Boston, Mass. The managers reserve the right and privilege of rejecting any or all proposals made as well as to adopt any kind of material proposed or to accept any proposal made irrespective of its relative cost as compared with other proposals submitted. Specimens of material to be submitted with the bids.

HOSPITAL.

[At Harrisburg, Pa.]

HARRISBURG, PA., July 13, 1882.

Sealed proposals for the furnishing of the materials and the erection of a new brick building on Front St., Harrisburg, Pa., for the Harrisburg Hospital, will be received until 2 o'clock, P. M., Friday, the 4th day of August, 1882. Plans and specifications for the same can be seen at the office of Luther M. Simon, architect, opposite the Penn lock, Harrisburg.

The successful bidder will be required to enter into a contract and give a good and sufficient bond for the prompt and faithful performance of the same. The name or names of the parties proposed as securities must be stated in the bid.

The managers reserve the right to reject any or all of the bids, and to accept such bid as they may consider advantageous to the hospital.

Proposals may be addressed to either of the undersigned, endorsed "Proposals for the erection of new Hospital-Building."

Bids will be opened at the office of the hospital, No. 127 South Front St., at the hour and date above mentioned, in the presence of the managers and of such bidders who may desire to attend.

HENRY MCORMICK,
CHARLES L. BAILEY,
RUDOLPH F. KELKER,
Building Committee.

STEAM-BOILERS, ETC.

[At Columbus, O.]

Sealed proposals will be received by the Adjutant-General, Treasurer, and Secretary of State, until 2 o'clock, P. M., of Wednesday, the 16th day of August, 1882, at the office of the Secretary of State, in the State-House, Columbus, O., for the construction and erection of certain works, and for making alterations at the said state-house.

The work will be divided as follows, viz:—

CLASS NO. 1.
Supplying and setting four steam-boilers, each 30' long and 4' 6" in diameter, with all necessary mountings.

CLASS NO. 2.
Supplying, fitting and hanging sundry steam-pipes and fittings, and also taking down, refitting and hanging sundry other steam-pipes and fittings.

CLASS NO. 3.
Supplying and fitting gas and water pipes.

CLASS NO. 4.
Masonry, plastering and concrete.

CLASS NO. 5.
Constructing raised floors in the Senate Chamber and House of Representatives, and sundry other carpenter-work.

CLASS NO. 6.
Sheet-metal and iron work.

CLASS NO. 7.
Paving and gas-tar concrete in basement.

The work may be let as a whole or in separate contracts, for each class of work indicated above.

Proposals must be made only on the forms supplied for that purpose.

The right to reject any or all proposals is reserved. Satisfactory security will be required for the proper performance of the work under each contract.

Plans may be seen, and specifications, forms of proposals and forms of contract obtained, at the said office of the Secretary of State, Columbus, O., or at the office of Messrs. Anderson & Hobby, Civil and Sanitary Engineers, Johnston Buildings, Cincinnati, O.

SAMUEL B. SMITH, Adjutant-General,
JOSEPH TURNER, Treasurer,
CHARLES TOWNSEND, Secretary of State.