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THE agitation in New York over the question of procuring an additional supply of water for putting out fires in the dry-goods district and the adjacent streets continues, but no plan has yet been decided upon. The simplest device for the purpose seems to be that which contemplates the introduction of a supply of salt water, through pipes laid directly from the Hudson River, but the scheme most likely to be adopted is one for bringing into New York the water of the Ramapo River in New Jersey, by a pipe under the Hudson. The Ramapo water could probably be delivered under some pressure, while the salt water would have to be pumped to raise it even to the street level, but pumping is so cheap that this difference would be unimportant. The main objection to the salt-water plan comes from the merchants, who believe that sea-water thrown over their goods from a fire-engine would cause much more serious damage than the Croton now used; and considering the character of the Hudson-River water near the piers this objection seems not unreasonable. A third suggestion has just been offered which may prove the best of all, this consisting in a proposition to sink or drive wells at various points throughout the threatened districts, to which the suction-pipes of engines can be directly attached in case of fire. The whole lower portion of New York rests on a porous gravel, and a hole dug below the sea-level rapidly fills with water, brackish and undrinkable, but clear enough for many purposes. As the supply of this water is certain and abundant, many such wells have been driven in the cellars of the stores recently built, and many thousands of gallons daily are pumped into tanks to supply plumbing fixtures or elevator cylinders, but the draught made upon a water-supply by engines during a fire is a very different thing from the steady and moderate consumption of a small steam-pump, and there is some doubt whether the quantity to be so obtained would be adequate for the service now proposed.

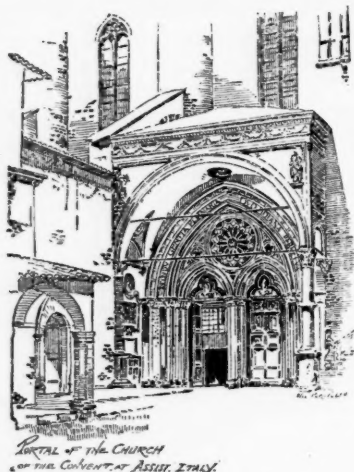
MANY of our readers know that iron cylinders, containing a saturated solution of acetate of soda, are now extensively used for heating street-railway cars, and a company has been formed to extend the use of this simple process. As now employed for warming cars, the acetate solution is placed in large iron pipes, which run beneath the seats on either side of the car. These pipes are permanently closed, but a smaller pipe runs through the whole length of each of them, and is open at the ends. On the arrival of a car at the station in cold weather, a steam pipe is connected at the open ends of the small pipes, and steam turned through them. If the car is just preparing to start on its first trip, after standing in a cold shed over night, the acetate of soda in the cylinders will have solidified into a mass of crystals. As the steam warms the pipes, the crystals begin to redissolve, and the whole is soon brought back to a liquid form. As in all cases of the passage of a substance from the solid to the liquid form, a large amount of heat is absorbed and rendered latent, or, as we should now say, is transformed into molecular motion; and the car starts on its journey with the absorbed heat safely stored away. The acetate of soda, being much less soluble in cold than in hot water,

soon begins to crystallize again as the liquid cools by radiation from the iron surface, but the crystallization itself sets free a certain amount of heat, and although the process continues slowly, enough heat is evolved to keep the car comfortably warm through the whole trip. On one of the Brooklyn lines, where the trip is sixteen miles long, a thermometer hung in the cars shows a difference of only one degree between the temperature of the air in the car at starting, with the cylinders freshly heated, and on its return to the station. A system of heating so simple and manageable as this is likely to find many useful applications, besides that of warming horse-cars; and cylinders are now made four inches in diameter, and three feet long, filled with the acetate solution, which can be heated over a stove to dissolve the crystals, and will continue for several hours to give back the warmth so absorbed. These are employed to heat private carriages and might be used in plant-houses, and for many other purposes.

A NEW sort of saw for cutting stone is described in *La Semaine des Constructeurs*, which seems to have advantages over those now commonly in use, and is easily and cheaply made and operated. In place of the ordinary long steel blades, supplied with sand to enable them to grind their way into the stone, the new machine presents only a slender endless cord, composed of three steel wires twisted together, which is stretched over pulleys in such a way as to bring the lower portion horizontally over the stone to be cut. The frame carrying the pulleys is movable, so that the cord can be brought into contact with the stone, or lifted away from it, at pleasure, and the whole is kept in rapid motion, while water falling in drops from a reservoir above serves to moisten the stone. The three wires which form the saw differ from the ordinary kind in being square in section, and by twisting into a cord they are so turned as to present a succession of oblique cutting edges, which act, when set in motion, in the nearly the same way as so many small chisels, while the rapidity with which the blows follow each other probably adds to their effect. The account does not say what proportion the work accomplished by the new machine bears to that effected by the expenditure of the same amount of energy in the old form of apparatus, and the invention is probably in too rudimentary a stage to make such comparisons practicable, but the idea seems to be a good one, and with wire of suitable temper and form the cutting effect should be very considerable; while, as every one will observe, the wire saw ought to be available for use in a vertical line, like a hand saw for cutting wood, and if operated in this way could be made to saw mouldings of the most difficult sections as readily as the same forms are cut in wood.

WE do not often go so far out of our way as to discuss commercial matters, but a note in the *Chronique Financière* of a recent number of *Le Génie Civil* offers a suggestion which seems, in the present unsatisfactory condition of the trade of the country, to be of considerable value. According to this, the Paris Chamber of Commerce has invited the other French associations of a similar kind to co-operate with it in the establishment of a society for the encouragement of foreign trade. There are already, in some of the important parts of the world, French chambers of commerce, or commercial committees, founded under the auspices of the Government of the Republic, and devoted to the promotion of the French commercial interests in places where they exist, and many more are to be immediately established. These will serve as correspondents of the new Society of Encouragement, each in its own place watching every opportunity to advance the interests of both. The foreign committees will keep the Paris body informed of the condition of trade and the opportunities for the foundation of new trading centres, and the Parisian society will try to find money and men for such enterprise. In addition to this, inducements will be offered to young Frenchmen to try their fortunes abroad, free passage to foreign ports, and even advances of money will be offered to those who merit such assistance; and to them, as well as others who deserve them, will be given recommendations and introductions which will secure for them either an engagement before they leave their homes, or a favorable reception when they reach their destination.

WINCHESTER, ENGLAND.



Saxon times. The Venta Belgarum of the Romans, it was a flourishing centre during their occupation of Britain. In 1519 it was conquered by Cedric, renamed *Witanceaster*, and made the capital of the West Saxon Monarchy. Egbert was crowned there, and it then became the capital of the kingdom until the time of Canute, who made London the seat of his government, Winchester remaining that of Edmund Ironside, but on the latter's death it became the sole capital of the kingdom, and remained so after the Conquest. It was surrounded by walls, and defended by a castle built by William on the west, and another on the east erected by the bishop. During the reign of Stephen it suffered from civil wars, and half the town was destroyed, including forty churches; and again during the struggle between Charles I and the Parliament party it endured a week's siege, at the end of which Cromwell blew up the castle and laid other buildings in ruins. Since then it has always been noted as possessing one of the grandest cathedrals, and one of the principal public schools of England.

Entering the High Street from Jewry Street (marking what was formerly the Jews' quarter) the visitor is struck by the picturesqueness of the vista looking up and down; on the right is the west-gate (the only remaining one), and on the left the town-hall with its huge clock stretching out over the road, with a curious statue of Queen Anne below it, dated 1713. Farther down the street is the city cross, erected during the reign of Henry VI, but very much repaired and patched of late years. In some of the houses are remains of barge or verge boards, and by a happy thought a new inn has been built in the same style just opposite the town-hall.

That there was a church on the present site as early as the second century there seems little doubt, and probably it was on the same spot as the Roman temple; but the first authentic building was that built by Bishop Constans in honor of S. Amphibalus in 313. In 516 Cedric repaired the church, turned it into a temple, and was crowned there King of the West Saxons. Taken down by Cynegils it was rebuilt by his son Kenewalch, and consecrated by St. Birinus in 635. This building seems to have remained until the time of St. Swithen, after whose death it was again destroyed by the Danes. The west church was built by St. Athelwold, and we have an account of this one by a contemporary of the architect, Wolstan. He says, "He built all these buildings with strong walls; he covered them with roofs, and clothed them with beauty; he strengthened the walls with solid aisles and various arches; he added also many chapels, with sacred altars, that distract attention from the threshold of the church. The stranger stands with wondering eyes, fascinated with the fine roof of the intricate structure." This church was completed in 980, and consecrated in the presence of King Etheldred, St. Dunstan and other bishops, and then occurred that famous "translation of Swithen," July 15th. The good bishop was a humble-minded man, and wished to be laid amongst his poor flock, but the monks not being satisfied with SS. Peter and Paul as patrons wanted to add Swithen, and so they bethought them to put the saint in a magnificent shrine inside the church. This so displeased the holy man that he sent such storms of rain that even the enthusiastic monks were obliged to abandon the scheme, for the rain continuing forty days seemed to prove the act contrary to the Saint's desire; and so for the time he was left in peace, but in 1093 when the west church was re-opened the body was placed in a grand shrine behind the high altar, and hence the elements continue to show the Saint's displeasure to this day. This new building was the work of Bishop Walkelyn, and much of it remains to prove the eminence of the architect and the generosity of the man, for he did it entirely at his own expense. The tower, one hundred and forty feet high and fifty feet broad, is intact as Walkelyn erected it seven hundred years ago, and the transepts have been little altered since that time. There is an account of the falling of the tower previously to this by William of Malmesbury, which is sufficiently diverting to be mentioned. "A few countrymen conveyed

the body of the king (Rufus) to the cathedral of Winchester in a cart, the blood dripping from it all the way. Here it was committed to the ground *within the tower*, attended by the nobility, but lamented by few. The next year the tower fell; though I forbear to mention the different opinions on this subject lest I should seem to assent too readily to unsupported trifles, more especially as the building might have fallen *through imperfect construction*, even though he had never been buried there."

The whole east end and Lady Chapel were rebuilt by Godfrey de Lucy about 1202. William of Edington began to rebuild the nave, west front and some of the windows, but it remained for William of Wykeham thoroughly to transform the Norman and Early English work into Perpendicular, and there are few buildings where this transformation can be so well studied as in this. There is a want of the uniformity to be seen at Salisbury, but the church is perhaps the more interesting in consequence. Fox added Perpendicular work of the highest order.

The nave is two hundred and fifty feet long, eighty-six feet wide, and seventy-eight feet high; the transepts are one hundred and eighty-six feet long. On entering the church the first object that strikes the visitor is the exquisite tomb of William of Wykeham, built, it is said, upon the spot where as a boy he was wont to hear mass. It is canopied, and had an altar surrounded by thirty statues, unfortunately now destroyed. The figure of the bishop, clad in Episcopal robes, is in alabaster, raised upon a pedestal ornamented by a series of escutcheons. Remains of color and gilding are to be seen.

Out of the south transept is a door which formerly led into the dormitory of the monastery, and just inside it, at the foot of the staircase, is a *calefactory* or stove where fire was kept for the censors, and where, probably, the monks warmed themselves on their way into church. Here, too, is an old vestment wardrobe. Hard by, is Isaac Walton's tomb, of no architectural value. The entrance into the choir is at the top of a flight of steps. Entering the gate the wood-work of the stalls is worth inspection, and the reredos would be were it not partly covered by a miserable picture by Benjamin West. The canopies remain, and are the wrecks of exquisite works, but the silver-gilt statues which filled the niches were all melted up by the Commonwealth soldiers, as was also the central jewelled cross. The choir is surrounded by a screen, and on this at intervals are some curious chests in carved wood, ornamented with gilt crowns at the top. It seems that after the Commonwealth, Bishop Fox gathered together all the bones of the kings which had been dispersed, and placed them in these chests. They are said to contain the remains of Cynegils, the first Christian king of the West Saxons, 641; Ethelwulf, the father of Alfred the Great, 857; Kenewalch, 714; Egbert, 837; Canute and Queen Emma; Rufus; Bishop Alwyn, Wina and Stigand; Edmund, son of Alfred; Edred, 951: a goodly company. Immediately behind the high altar is a chapel which formerly contained the silver-gilt shrine of St. Swithen, the gift of King Edgar. On one side of this is the beautiful canopied tomb of Bishop Fox — late Perpendicular work, colored — the bishop lying in his winding-sheet, his feet resting on a skull, a model of humility; on the opposite side is Bishop Gardiner's tomb, partly Perpendicular, partly Renaissance.

Issuing from this part of the church we enter the older part to the east of the choir, and the first object which attracts attention is Cardinal Beaufort's chantry, a marvel of late work, with an exquisite vault in fan-tracery. This, too, shows evidence of having been colored, the cardinal's robes still being gorgeous. He seemingly had little faith in his own goodness, or in that of his family, for he left by will that *three masses* should be said daily for the repose of all their souls. Bishop Waynflete's tomb opposite is no less beautiful. The Lady Chapel was the scene of the marriage of Queen Mary and Philip of Spain, and the chair used on the occasion is still in it. More beautiful than this chapel is that to the right, almost entirely covered with carved wood-work, called after the prelate who lies buried there, Langton. Middle-Age wit can be studied here in the rebuses on the groining — such as a *musical note* inserted in a *tun*, — Langton; a *vino* growing out of a *tun* — alluding to the See, Winton; a *hen* sitting on *tun* — signifying the Prior, his contemporary, Henton.

Immediately behind the High Altar is the Holy Hole, which was formerly the burial place of persons of great sanctity, as is proved by the inscription over the entrance: —

*"Corpora sanctorum sunt hic in pace sepulta.
Ex meritis quorum fulgeri miracula multa."*

Hardicanute, the last of the Danish line of kings, was buried here in 1041. In the west transept are some remains of fresco painting — one tolerably perfect picture of St. Christopher bearing the Infant Christ. The font is a very early work in Purbeck marble, ornamented with scenes from the life of St. Nicholas.

At the north-west corner are foundation-stones which formed part of the chapel erected over the spot where St. Swithen was originally buried. Passing into the close we find considerable remains of the Priory buildings, amongst which is the Deanery with three Early English arches of great beauty.

Next to the cathedral, St. Mary's College is the most interesting building in the old city. It was begun by Wykeham in 1387, and was completed in six years. The numbers and degrees of the different members of this foundation are a curious instance of one of the fond practices of the Middle Ages. The warden and the ten priests represented the twelve Apostles — Judas, of course, being omitted; the head-master, the second master with seventy scholars denoted the

seventy-two disciples; three chaplains and three inferior clerks marked the six faithful deacons; the sixteen choristers represented the four greater and twelve minor prophets. Over the entrance is a large statue of the Blessed Virgin, which has been preserved in an unaccountable manner. On entering the court the first thing I saw was a number of old women picking up the grass. This is an old foundation, giving these old ladies £1 a quarter and broken victuals from the refectory for their pains. Whether the women or the court profit most by the arrangement I cannot say, but the work seemed to be done only to save the clause in the will, for little grass was to be seen, and the women's power of picking it up was smaller still. Everything at Winchester remains as it was, even the chest into which all the broken victuals are thrown, and from which they are taken out in basketfuls. The chapel is a good specimen of Perpendicular work, but much restored, as is also the library, now used as a chapel for the younger boys. The cloisters are full of old brasses and more modern memorials of Wykehamites, and one very curious inscription deserves notice:—

"UNDERNEATH THIS MARBLE LIES THOMAS WELSTREAD WHOM DEATH LAID LOW BY THE BLOW OF A STONE. HE WAS THE FIRST IN THIS SCHOOL, AND IS, WE HOPE, NOT LAST IN HEAVEN, AND WHICH PLACE HE WENT INSTEAD OF GOING TO OXFORD. AGED 18."

The refectory has a timbered roof, and the original tables, platters, mugs, etc.; and in the great school-room the old lockers, cut and lacked by many a boy, the stone floor, the enormous fireplace and high windows letting in little light, still remain as in days past, the joy of Wykehamites, and the misery of any one with nineteenth-century tastes, one would imagine.

A mile out of Winchester is the old hospital of St. Cross, to this day preserving its mediæval character intact, although restored and reformed as regards its present purpose. It was founded in 1136 by Henry de Blois and Bishop of Winchester for thirteen poor brethren, the number being the same at present. They must be poor, but not in the receipt of parochial relief, and at least fifty years of age. They receive rations, a weekly payment of five shillings and their gowns. Besides these the original foundation included the "hundred hall poor," but the funds are at present in so bad a state, owing to mismanagement and various abuses during many years that their number is far below that originally intended.

Entering the outer gate the visitor passes through a small court, on one side of which is the "Hundred Mennes' Hall," on the other the stables, now a brew-house, and the kitchen. Passing through the second gateway, Beaufort tower, the porter accosts you at a small doorway. Here are photographs, crosses and various memorials of the old hospital, and also the "dole" of bread and ale, which are still given to all visitors: formerly, no doubt, it was sufficient to refresh the weary wayfarer, but now it is a small piece of bread served on a platter marked with the selon Greek cross, and some beer in a small tankard. This tower was erected by Cardinal Beaufort in 1404-47, the gateway being vaulted and ribbed. The gates are shut every evening at eight or nine, according to the season. On the west side of the gateway looking into the second quadrangle is the master's lodge and refectory, forty-five feet long, twenty-four feet wide and thirty-two feet high. An open hearth occupies the centre of the hall, and at the upper end is a raised dais and high table, behind which is a tolerably good specimen of early Flemish art, a triptich—the Holy Family, and SS. Catherine and Barbara. Tradition attributes it, without any evidence, to Albert Dürer. The tables remain as of old, and upon the raised one at the end are some old leathern jacks and metal candlesticks. A staircase leads from here to the muniment-room over the gateway, probably an alteration made by Bishop Fox, as the first baluster is surmounted by his emblem, a pelican. The brethren are accustomed to wait in the hall for their rations, which are cooked in the common kitchen, but only on rare occasions do they dine there, it being considered more in harmony with modern ideas for them to have their meals in their own rooms. There are the remains of some old stained glass not of much value. In the kitchen an old smoke-jack arrangement, old pewter platters and plates, and old jugs can be seen.

Returning from the refectory one gets a good view of the church on the opposite side of the square, the cloisters to the left, and the brethren's houses to the right. The grass and flowers are all well kept, as also are the paths. Each old man has two rooms, scullery, etc., and a little garden. The houses form one continuous row, with high roofs and tall chimneys, making a picturesque appearance with their creepers and flower beds. One brother invited me into his house, and a more comfortable place one could not have; he lives there with his wife, and when I told them I was going to write an article about St. Cross for an American paper they seemed so pleased that I promised to send them a copy. Leaving the house, after putting on his cloak with the badge on the shoulder (the Greek cross), he conducted me over to the church, one of the best specimens of Norman architecture in the country. It was restored in 1860, through the munificence of an anonymous donor, Z. O., by Mr. Butterfield, as the perpetual use of the barber's striped pole ornamentation only too well shows. The coloring is by most persons considered a mistake; it is hard, crude, spotty and wanting in effect, the fine old mouldings having been rendered patchy. The windows nearest the transepts are Norman, those toward the west end Early English, while the clerestory are Decorated—they and the roof above them being the work of William of Edington, about 1334. The roof was only thatched until his time. John de Campden, 1382, completed the tower. The east end of the church, built by de Blois, has an arcad-

ing of semicircular interlaced arches of great beauty, supported upon Purbeck marble shafts, and richly ornamented. The bases of the columns have foot ornaments. The transition from Norman and Early English can be well studied here in the aisle-windows of the nave. The first from the east is distinctly Norman, with the square abacus surmounting the shafts; the second is round-headed, but with a circular abacus and later mouldings; the third is bluntly pointed; the last is Early English. The projecting Purbeck bases near the altar, on which the piers rest, have a tale of their own to tell. They were surmounted, till recently, by large octagonal columns of the Perpendicular period, which appeared so clearly to be a later casing of earlier work that during the restoration of the church the architect determined to investigate the matter. On removing a portion of the casing a circular column of Caen stone was found within, but some farther signs of a Purbeck marble capital appearing inside that again the workmen were induced to penetrate yet deeper, and the discovery of a complete Purbeck column of about twelve inches diameter in the centre of all, was the result. An open cluster consisting of central column and four detached shafts of marble had evidently been intended, but it was probably discovered during the progress of the work that this arrangement was not equal to the superincumbent weight, and so the column was cased with Caen stone. On trying the same experiment on the south pier the Caen stone was easily reached, but the workmen failed to detect the innermost shaft of marble, proving that even then the first design had been abandoned. John de Campden, two hundred and fifty years later, seems to have considered the enlarged columns, which were nine feet six inches in circumference still unequal to the position, and consequently, he released them. Another interesting discovery was that of the high altar slab, which was found imbedded in the wall in an upright position, and covered with white-wash; when this was removed the five consecration crosses were found as sharply defined as when first incised. This dark marble slab was probably the one surmounting the alabaster altar erected by de Campden. In one of the side chapels and in the south transept are some remains of wall paintings.

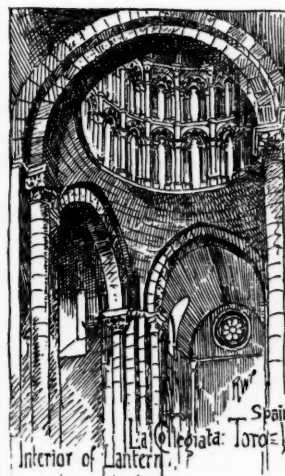
The whole church was probably colored originally, but what remains seems, even allowing for the harmonizing effects of time, to be of a less crude nature than Mr. Butterfield's. Very little old glass remains, and the modern is not of much worth. A great deal of old tile pavement, found scattered about, has been collected and placed in the north and south aisles, while the nave has been laid with new, copied from the old designs by Minton.

Beyond the precincts of the hospital are the park, meadows and gardens, a peaceful place enough to roam in on a summer's day in the winter of life; while hard by, behind the south-eastern corner of the church, is a more peaceful spot still, where, close to their friends, the bodies of those brethren, who have joined the great majority, are laid to rest.

S. BEALE.

SPANISH ARCHITECTURE.¹—XIV.

SALAMANCA (continued).



ments are not often new. The city looks old indeed from here. The cathedral upon high ground stands prominently above the houses and these, irregular in grouping originally, are made still more so by gaps and ruins, mouldering records of the French war in 1812 and 1813. Ney in his desperate defence of the position against the Duke of Wellington and his Anglo-Spanish army devastated whole sections of the city to construct fortifications and to obtain fuel. At the southwest part the extent of waste land broken by fragmentary parts of buildings and heaps of debris is peculiarly mournful looking. It is not only the desolation of a merciless war which marks it, but the inanition of the succeeding generations is even more depressing. Time seems to have stood still there since Salamanca fell.

¹ By Robert W. Gibson, Travelling Student of the Royal Academy. Continued from page 201, No. 435.

THE River Tormes near to which Salamanca stands, is crossed by a venerable bridge; one of those relics which characterize European river scenery as contrasted with American. As usual, we find the oldest parts are Roman, more than half of the twenty-five arches are of that antiquity and still do their duty well. The rest are of the time of the Emperor Charles V, and many another builder and repairer. The stream is broad and bright and oftentimes picturesque groups of women washing clothes and chattering as only washerwomen can, animate its banks. Their dress always includes some bit of color to gratify their Southern eyes, gay and strong often, yet rarely crude, for the sun and water tone down the most glaring dyes in a little while, and these garments are not often new.

I leaned one night upon the iron balcony of my room overlooking the Plaza and wondered at it all. The bright moonlight made the dark shadows black in narrow alleys and archways. Here and there an oil lamp swung from a cord and threw an ambered-colored glow upon the old walls around it. And away in the distance could be heard clocks striking almost continually, for they are many and they give every quarter-hour and vary considerably in their time-keeping.

Perhaps this is why the watchmen chant the time o' night as they patrol, but it does not account for their antique equipment. Yet how charming it is to find a corner of Europe where the guardians of the peace, heavily cloaked as historical conspirators, and armed with seven foot spears to glint reassuringly in the light from oil lanterns which have done duty for centuries, sing as they go "*Las once, Sereno*—" the last word in reference to the weather and therefore occasionally varied. But it seems that Spanish weather is not very inconstant for these chroniclers of its phases are often referred to as "*serenos*" from the constant repetition of that word.

It was *tiempo sereno* indeed when I travelled from Salamanca to Zamora. The sun was nearly at its summer altitude, and five of us in a small coach seemed at least three too many. Nevertheless we derived some advantages from companionship. A Spaniard travelling is very courteous and hospitable; no one will eat or drink or smoke without first inviting every fellow traveller to share the provision. And although it is in extremely bad taste to accept upon the first offer, yet it will be often repeated and genuinely pressed, and then each can supply the others deficiencies. Even the driver of our coach when he produced from under the seat his garlic-flavored stew in a dugout loaf, politely offered it through the front window before he began to eat. We all declined gratefully; but we did accept wine from one well supplied, and dispensed dessert and cigarettes in return. In fact, under such circumstances, it seemed that all the food in the vehicle was common property. The wine was carried in a leather bottle, still the favorite vessel for travelling, and, seeing its convenience it is not surprising. I noticed also in a wine-growing district which we crossed, many caves in the hill-sides closed with doors and used as *bodegas* or wine cellars. And this journey afforded another proof of the thinly populated condition of the country (as compared with Northwestern Europe): 42 miles from one small town (although here considered large); to another and only two mean poor little villages passed, and one or two others sighted. Nowhere any accommodation for travellers better than a primitive *posada* with a clay floor and leaky roof for shelter and wine and coarse bread for food. I can now understand why Spaniards always carry plenty of food with them, and why experienced tourists advise so often "look after the provender." On this road as on every other we meet the pair of lonely guardsmen—the "*Guardia Civil*." They march along, generally one on each side of the road, silent, sunburnt, neat, hearty and apparently contented. I suppose they hardly meet twenty people a day in some localities, and they seem hardly to have twenty words a day with which to greet them. A monotonous life, but the country has benefited enormously since brigandage and lawlessness was thus checked with semi-military force.

We arrived at Zamora in the evening, and found it a city looking poor and dirty after Salamanca. The one hotel was, although it boasted the name of *Fonda*, a queer habitation, but at least I had the satisfaction of knowing that I was seeing Spain as it really is.

The cathedral is interesting, but small and less beautiful than others of its class: a nave of four bays; a crossing with shallow transepts; and a short polygonal *capilla mayor* with side aisles compose its plan. I found its chief interest in the evident fact that the domed lantern over the crossing is the original upon which the more perfect work at Salamanca was modelled.

It shows the same disposition of parts; pendentives over the main interior arches, then a cylindrical drum arched and with windows, but in only one story, and sixteen vault ribs rise from shafts around the drum to support the vault, much as at Salamanca; rather less elaborate but I think even better proportioned. Externally, also, the resemblance is very strong (as may be seen by the illustrations). Similar turrets on the angles of the square serve to buttress the circular vault and similar gablets between them assist the intermediate points. It is all more clumsy and rude. It was probably not designed by the same architect, but the credit which has been given almost wholly to Salamanca's architect more properly belongs here, for the ideas are all well developed and the design evolved. This and the rest of the church are of the transition epoch, completed about 1174, the latest, richest Romanesque, merging into the earliest, heaviest Gothic. It is somewhat curious that the elaboration of more complex forms in arches and pillars should have been accompanied by a cessation, almost, of the lavishness of ornament. Yet it is so; the pointed work, more complex in composition generally, is simpler in decorative detail; until the latter reasserted itself later still.

The Coro screen here is of a very late inconsistent kind of Gothic, flat, three-centered arches surmounted by fanciful trefloiled label-moulds decked with debased carving.

The interior of the Coro is also very richly carved, but most of it in better taste, although late in style.

The external view of the church gives an unusual group. A very large and sturdy tower stands at the northwest angle. It is of four stories above the roofs of nave, nearly equal in height and separated by plain narrow string-mouldings. The first stage is blank wall; the second has a single round-arched window, the third a double and the upper a triple, of the same character. The pyramidal tile roof is

evidently only a temporary covering, but it is hard to say what was intended to complete it.

The south transept façade is very peculiar. It is unfortunately so crowded by a large building (the episcopal residence, I think) that one cannot stand far enough away to get a good view (the illustration shows the best view obtainable). The fluted columns running through two stories are odd and seem to be derived from a classic source. The pointed arch and low gable over them is probably rather later than the rest. The remainder of the composition is very handsome. The doorways are well-proportioned and rich; the orders of the arches being ornamented with a form peculiar to this district. I did not see it anywhere but here and at Salamanca. The manner in which the columns and piers are based upon the plinth is very effective, and is one of the things so exceptionally well understood by these old architects.

During my stay here the festival of "*Corpus Christi*" was celebrated. All the town and I suppose all Spain making holiday in gorgeous array. A great religious procession escorted the fine silver monstrance through worshipping crowds amid showers of flowers and leaf sprays. Many images and canopies and banners accompanied it, and the greater number of the people showed deep reverence for all, kneeling upon the earth and muttering prayers in fervid earnestness. Yet here and there a group could be seen standing, and covered; unawed though not unimpressed. They do not incur such dangerous penalties now as when their fathers were boys. Next day the monstrance was exposed in the cathedral upon a silver pedestal and finely mounted with candles and other accessories; a most imposing group, and with the worshippers around it a striking subject for either painter or philosopher.

The churches of San. Vincente and Sta. Maria de la Horta have towers resembling that of the cathedral; another example of that carelessness in originality which I noted at Segovia.

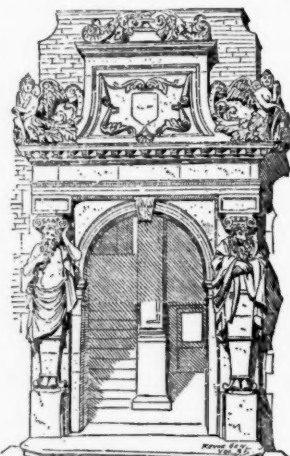
San Miguel and La Magdalena both have handsome and good doorways, the latter very large and elaborate; and some other churches are interesting.

The city is built upon a long eminence and as its old walls and towers remain perfect in most parts the general view is very effective and characteristic. Zamora was taken from the Moors in 748, recaptured and devastated in 985, finally re-established by Ferdinand I. After that, a civil war kept up its character as a fortified city of great strength, and it can still be seen that its boasts were not without foundation.

The bridge over the Duero with seventeen pointed stone arches and lofty gate-towers rivals that of Salamanca in picturesqueness.

Between Zamora and Medina junction, the railway passes the little city of Toro, in ancient days a place of much importance but now generally overlooked even by the tourist. I stopped here to see and draw the very fine lantern of the Collegiata (see *Illustration*). It is the Zamora-Salamanca type once more modified, developed from the second, as that was from the first. Unfortunately it is incomplete, and it is doubtful what the architect's intentions were in regard to the roofs and uppermost cornices. Probably the gablets were to be omitted; there is no sign of them, although the design is such that they are still possible. But there is a grandeur and unity in the greater emphasis of the circular effects of the composition in which it far surpasses its prototypes; while the four circular pinnacles are at least equally good. Internally there is less difference: it is so very similar to the Salamanca example that one description will suffice. The rest of the church is interesting Romanesque work. There is a very fine west doorway carved in the richest manner.

LATIN LEGENDS ON AND OVER LINTELS.



DOORWAY—HOTEL DE PIERRE.
TOULOUSE, FRANCE. EARLY 12TH CENTURY.

IT is not a little significant that so many of the inscriptions over old doorways are in Latin. We might almost assume it was taken for granted that those who could read at all could read Latin. At least, we may be certain those who could express their thoughts in Latin were too impressed with its superior conciseness and dignity to use the vernacular. Boswell tells us Dr. Johnson peremptorily refused to re-write an epitaph on Goldsmith in English. "He desired Sir Joshua to tell the gentleman that he would alter the epitaph in any manner they pleased, as to the sense of it; but he would never consent to disgrace the walls of Westminster Abbey with an English inscription." And if we turn to the pages of the "*Citizen of the World*" we may note

Goldsmith curiously records two Latin inscriptions as carved on the garden-gates belonging to the Chinese philosopher.

Many Latin inscriptions are to be seen in Cumberland; sometimes

on the homely and sturdy manorial houses; sometimes on lonely gray farm-houses, among the fells, and becks, and rocks; sometimes on smaller houses in the gray towns. Occasionally there occurs an English couplet or stanza, but the larger number are short, pithy Latin sentences. In some instances an inscription has been repeated in the same district by an admiring neighbor. Thus, at Blencowe Hall, near Greystoke, there is carved over the principal doorway:—

"QUOR SUM 1590
VIVERE MORI MORI VITÆ.
Henricus Blencowe."

And at Millbeck Hall we may read:—

"1592. QUOR SUM. M. W.
VIVERE MORI MORI VIVERE.
Nicholas Williamson."

As a rule, however, each motto seems to have been selected for its fitness for the purpose in hand, just as when the monkish builders of York chapter-house looked upon their superb work with rapturous content, they inscribed on the lintel of the inner side of the doorway:—

"UT ROSA FLOS FLORUM
SIC EST DOMUS ISTA DOMORUM."

On Barton Hall is inscribed, "*Non est hæc requies, 1628;*" and on Barton Vicarage, "*Non mihi, sed successoribus, 1637.*" A small house at Eamont Bridge is inscribed, "*Omne solum forti patria est. H. P., 1671.*" And in Penrith there is a house inscribed, "*Ex sumptibus Du Wil Robinson, Civis Lond. Anno 1670.*"

Sometimes there are several Latin mottoes in small out-of-the-way villages, associated with the arms of the families owning the properties on which they occur. In Northumberland, on the north-eastern coast, midway between Bamborough Castle and Dunstanborough Castle, for instance, is a village known as Beadnel, but called by its seafaring inhabitants Beadlin. It has a wide and spacious green with a church upon it, and two great houses with their grounds bordering one side of it, and a row of small stone houses facing them on the opposite side of it. One of these small houses has the date 1636 deeply cut on the lintel of the door. Over the next doorway is a coat-of-arms, with the motto "*Redde diem*" carved in stone. In the same row is another house with the same motto carved upon it. The village inn, too, which has been a pele tower, and still has a stone-vaulted chamber on the ground-floor, with walls that are nearly five feet thick, has its Latin motto, "*Dum vivo spiro,*" associated also with a coat-of-arms carved upon its principal front, which has been modernized.

Hexam has a few interesting examples of inscriptions on houses, both in Latin and English. An Elizabethan house in Market Street has on the door-head, in incised letters of quaint workmanship: "*SOLI . DEO . CELI . AC . SOLI . CREATORI . LAUS . IVLII . 15 . AO . DNI . 1641;*" and a house of the Tudor period in Gilesgate has on its lintel, "*Honi soit qui mal y pens. W. S. B. Anno Domini 1638.*" There is also an ancient oak mantelpiece in Hexham with a curious inscription that has been accepted as Saxon.

Over the doorway of Felton Vicarage, still in Northumberland, within a triangular border, is an inscription, thus worded: "1683. *Has Aedes Posuit Robertus Henderson Trinitatis Collegii Cantab: Tempore Barrovi tempore Newtoni Socius Hujus et vicarie non indignus vicarius Pietatis ergo posuit hoc patri filius testimonium, 1756.*"

In Yorkshire the old three-gabled hall at East Ardsley has over its doorway, dated 1632, the motto "*In Domino Confido.*"

The fine quadrangle of Jesus College, Oxford, has a handsome doorway of Stuart's times, inscribed, "*Ascendit oratio, descendat gracia.*" On a house at Hyde, Essex, is carved "*Ostium patet cor magis.*" The vicarage house at Colyton, Devonshire, has a Latin motto over a window, "*Peditatio totum, meditatio totum.*"

Wynnestay has the following:—

"*Cui domus est victusque deceus cui patria dulcis
Sunt satis hæc vitæ cætera cura labor.*"

Edinburgh still possesses numerous examples of Latin inscriptions on old houses, especially in its narrow wynds and closes, where modern improvements have not called for their demolition, as in the principal streets. In Rae's-Close there is a house inscribed, "*Misere mei Domine A Peccato Probo Debito et Morte Sabita me Libera, 1618.*" In Trench's-Close there is, "*Hodie, Mihi, Cras, Tibi,*" inscribed on a house. In Blackfriars-Wynd this inscription occurs: "*In te speravi. Pax intrantibus. Salus exeuntibus. 1619.*" In Anchor's-Close we may read, "*Angusta adusum angusta.*" Two entrances to Advocate Hope's house, in Cowgate, are respectively inscribed, "*Tecum Habita,*" "*Hospes humo.*" The old assembly-rooms are inscribed, "*In Domino confido. 1602.*" On the house of Mary of Guise is the motto, "*Laus et honor Deo.*" On a house in Sempell's-Close, dated 1688, are both English and Latin inscriptions. The last mentioned runs, "*Seeles Marret optima coelo.*" Over the door of a house in West-Bow is carved, "*Soli Deo honor et gloria.*" The Tolbooth, in Canongate, too, has the Holyrood arms on it, and the motto, "*Sicitur ad astra,*" and many of the country houses of the Scottish gentry and nobility have also preserved these curious mementos. These mansions, always picturesque, with their crow-stepped gables and high chimney-stacks, occasionally possess doorways with richly-moulded jambs. On the lintel of the entrance-door to the staircase of Darnick Tower, about a mile west of Melrose, is a central sunken panel, with the sacred monogram-carved on it, with two others containing

the initials of the owner and his lady at the time of the date, 1659, which is carved on a fourth panel. Boswell tells us, in his account of his tour in the Hebrides, he had special satisfaction in pointing to Dr. Johnson the motto carved on the front of his ancestral residence, Auchinlech. This legend runs:—

"*Quod petis, hic est
Est Ulubris animus si te non deficit æquus.*"

And he quotes in full a very lengthy inscription on Dunvegan Castle, with similar enjoyment.

Marlefield House has over the door the coat-of-arms of the Bennetts, and their motto, "*Benedictus qui tollet crucem.*"

Houndwood House has a rhyming couplet:—

"*Nunc mea Tunc hujus
Post illius, nescio cujus. 1636.*"

In a lane in Withorn is a house, inscribed over the door:—

"*Qui studet optatam cursu contingere metam
Multa tulit fecit que puer sudavit et absit.*"

And at Abbotsford, built in above the library window, is a lintel from the door of the Common Hall in Edinburgh University, with this inscription: "*Virtus rectorum ducemque desiderat, vitia sine magistro desuntur.*"

"*Per Augusta ad Augusta*" is inscribed over the door of an old house in Coire.

Occasionally we find Latin inscriptions within-doors on chimney-pieces, and on pieces of furniture. A chimney-piece at Knolle, Surrey, is inscribed, "*Æstate frygo Hyeme incalisco.*"

A mantelpiece in the hall of the Vicar's Close at Wells sets forth: "*In Vestris precibus habeatis commendatum, Dominum Ricm Pomroy quem salvet Deus. Amen.*" Chairs were often thus decorated. The Glastonbury chair is a case in point. "*Crestu sub pondere virtus*" occurs on some chairs in a country seat at Llanbedr. This, however, is a branchlet of the subject that requires special treatment.—*The Builder.*

THE HISTORICAL MONUMENTS OF FRANCE.¹



TO the architect's ear the title of Mr. Hunnewell's book is full of promise. It hints at just the kind of book which architects have greatly needed, especially travelling architects; and nowadays, happily, most American architects are travelling architects. To such travellers a guide which tells them where to go and what they will find, in the country whose architectural wealth surpasses all others, will be very welcome. Such a book made by a competent architectural hand would be invaluable. Mr. Hunnewell's book is not an architect's book, nor an exhaustive guide-book of any kind, but an intelligent traveller's account of a great many important buildings in all quarters of France. The descriptions are not those of an expert; the historical

notices deal more with the history of society and politics than with that of architecture. A little more knowledge of architecture would have given the author a better sense of the relative importance of the things he describes, and a better power of selection and emphasis. An architect would not have neglected to notice the square east end of Laon Cathedral, exceptional in France, nor the part of the commune in its building and use; nor the German plan of Noyon, nor the connection of Sens with Canterbury, nor the curiously typical development of tracery in Bruges, nor would an architect have passed over the famous cloister of St. Trophime at Arles, or have omitted Poitiers with its noteworthy series of churches. Nevertheless the descriptions in Mr. Hunnewell's book are intelligent and the history is interesting. Architects will find enough in the text to make them read it with pleasure; and professional and non-professional readers alike may be pleased to know, for instance, that the carved capitals of the chateau of Chambord cost twenty-seven sous apiece, and that the masons that worked upon it were paid three sous a day.

Architects will be compensated for the unprofessional character of the text by the lists with which it is supplemented, and which to them will be the most valuable part of the whole. They enumerate the principal Celtic and Roman remains, a list of the cathedrals of France, and of the former cathedrals as well, also a classified list of other architectural works. The lists include brief descriptions of the more important works, and contain, we should judge, the whole roll of Historical Monuments, besides many other buildings of interest, occupying some seventy-five octavo pages. They give a great amount of information which is valuable to the architect, and which,

¹ *The Historical Monuments of France.* By James E. Hunnewell, Boston: James R. Osgood & Company, 1884.

so far as we know, is not accessible elsewhere in English dress. The whole book is rather too bulky for a travelling companion; but if Messrs. Osgood & Co. have preserved the plates of it they could not do a better thing for architectural travellers than to print off in cheap form the lists and the index. And if they would add to it a reproduction of the map of the *monuments historiques* published in Hocquart's "*Archéologie des Provinces, etc.*"; they would make the best attainable *vade mecum* for an architect's tour in France—something for which he has longed in vain.

It is not an easy thing to make sure of thorough-going accuracy in such a book as Mr. Hunnewell's; the proof-reading of it is far from irreproachable, but in the main it seems to us trustworthy. There is a curious statement on page 158, that the chimney-piece in the gallery of Henry II at Fontainebleau is "shown in the plate annexed," whereas the annexed plate is of the *Salle Louis XIII.*, and shows no chimney-piece whatever. "Rounded Cap," by the way, is an inadequate name for the segmental pediments that do appear over the doors in the plate. To say (page 91) "Jean Texier of Beauce was the architect" (of Chartres Cathedral) seems to imply that Texier was born in a town called Beauce. But the Beauce, from which Texier was popularly named, is a large district about Chartres, and this Texier was born, according to Lance, in Chartres itself. It is not unnatural to speak of the "jube" of the *Ste. Chapelle* at Paris, although there is no *jube* (rood screen) in the chapel, but a light arcade behind the altar, sufficiently like a *jube* in design, though not in position or use. But in a rapid reading we have detected very few errors of statement.

The illustrations of the book, a score of fairly good photo-lithographs copied from various sources, are only enough to recommend it to the public, being too few and too familiar to be of much value to the architect or the connoisseur. Juxtaposition of the prints of the *Pont du Gard* and the viaduct at Morlaix, by the way, makes an interesting parallel between an ancient and a modern work of similar forms and analogous uses, a parallel which is not to the advantage of the modern work.

THE ILLUSTRATIONS.

THE CATHEDRAL, ZAMORA, SPAIN.—LA COLLEGIATA, TORO, SPAIN.

SKETCHED BY R. W. GIBSON, ARCHITECT, ALBANY, N. Y.

For description see article on "Spanish Architecture."

RESULTS OF TESTS OF THE TRANSVERSE STRENGTH OF BEAMS.

— PLATE X.

For description see article on the "Transverse Strength of Timber."

FREE LIBRARY, WATERTOWN, MASS. MESSRS. SHAW & HUNNEWELL, ARCHITECTS, BOSTON, MASS.

HOUSE AND STABLE, WEST BOULEVARD, NEW YORK, N. Y. MESSRS. GILBERT & THOMPSON, ARCHITECTS, NEW YORK, N. Y.

To be built of brick, and stone trimmings, and to cost about \$50,000. Stable and coach-house to cost \$10,000.

SOME NINETEENTH-CENTURY ARCHITECTS.¹—III.



Street, whom we have only very recently lost, various considerations would seem to make it a little difficult to include an adequate notice. Some other observer of men and things may, I hope, sketch for you the whole group complete. I can only undertake three members of it. Among those who should be noticed in such a paper would be some whose archaeological inquiries, following in the wake of Pugin and of that accurate and indefatigable pioneer, Mr. Rickman, extended, and we may almost say perfected our knowledge of the architecture of the Middle Ages in Great Britain. Foremost among these was the learned and acute Willis, who seemed to read an old building just as easily as the merchant can detect the state of trade from the city article of his newspaper and the price-list of his stockbroker. Hope Pettit, the most rapid and clever sketcher of his time, Brandon, Hudson, Turner, and the indefatigable Parker, were among those who labored successfully in this field. Last, perhaps, but by

THE Gothic Revivalists.—The association of ideas, and the chances of personal acquaintances or friendship, have led almost unavoidably to the grouping together of many more architects of the Classic school than of any other, so that space has not been left for adequate mention of the men who, after Pugin and Barry, carried on the Gothic revival. Happily not a few of them are still living and working among us, as is the great master of English prose whose pen so powerfully aided that revival; and in one or two other instances, as for example in the case of that able and most distinguished artist Mr.

no means least, among these was Edmund Sharpe, of Lancaster. His books are among the best, his "*Parallels*" probably the best, of the publications of this century that illustrate English Gothic architecture; and his spirited and repeated expeditions when, in connection with the Architectural Association, he conducted an excursion of architects and architectural students to fields of study in this country and in France, have established an extraordinary claim in our admiration and respect; Sharpe was full of enthusiasm, energy, and knowledge, and was as keen a student of his art down to the day of his death as at any period.

Blore and Salvin, Carpenter and Woodward, Raphael Brandon and Somers Clarke, and that genial and kindly pair, Talbot Bury and Benjamin Ferrey, both, I believe, pupils of Pugin, are among the architects whose names occur to us as active in the earlier and middle days of the Gothic revival, and whom it would have been pleasant to notice, but this paper must close with a few words on Gilbert Scott, George Edmund Street, and William Burges.

Sir Gilbert Scott.—There are few names, if any, which I should wish to mention with more emphasis, and at the same time with more cordiality, than that of George Gilbert Scott. The man and his work filled a conspicuous place among the architects, and in the architecture, of the nineteenth century. The story of his life, told with a frankness that is at times startling, is readily accessible, and need not be here related, except in the shape of a very bald summary.

Scott was a man of immense application and perseverance, and his power of concentrating his efforts on the object before him, and of continuing them till that object was attained, was remarkable. His first successes, when in partnership with Moffatt, were won in competition. A large number of union work-houses were to be built under the new Poor Law, and Scott and Moffatt embraced every opportunity of competing for these, and had an extraordinary run of success. During this time he used to work with wonderful energy, late and early, and sometimes all night through; and he obtained a good deal of enthusiastic help from men who, like himself, were students of Gothic architecture, with the hope of practising it. This hope in Scott's case, at any rate, was abundantly realized, in the many churches he built and restored, and in his cathedral restorations. Some, at any rate, of his first churches were Early English of a severe type, like the one at Ambleside, and inclined to be heavy. Later he seemed to prefer late Early English or Decorated, and his work was a little tinged with Continental Gothic, though this appears much more in his secular buildings than in his churches.

The pressure of work was for some time such as to task the energies of the most active of men, even with the aid of a large and highly-trained staff, and some amusing stories were circulated about the results of such high-pressure work; but I believe that all which could be done by untiring diligence and rapid despatch to keep himself personally abreast of his work was done. I once, in the height of his busiest time, called on him to borrow the drawings of a public fountain which he was erecting in India. Scott was out, and the drawings were not forthcoming, but one of his staff offered the loan of Mr. Scott's sketch. This, when produced, turned out to be a sheet of double-elephant paper, on which the plan, section and elevation were all drawn to quarter scale roughly, but with fair accuracy, and in full detail; and in addition sketches of the profiles of every moulding, and an idea of the character of the carving in capitals and other enrichments were added. In fact, every inch of this comparatively modest work was there designed, ready to be translated by a draughtsman into working drawings.

Scott had an intimate knowledge of the architecture of every part of England down to the peculiarities of individual churches; and with all building materials and modes of construction he was thoroughly conversant, as he was with every part of the history and features of Gothic architecture. His largeness of knowledge, his experience, and his great reputation, which was a tower of strength on which restoration committees and cathedral chapters could rely, caused him to be selected, and rendered him perhaps the fittest man to deal with difficulties in our cathedrals and abbey churches; and however disappointing the employment of a stranger may have been to individuals who had strong claims in respect of individual fabrics, it was, on the whole, a happy circumstance that at the moment when nearly every cathedral in England was being repaired, there should be an architect of sufficient standing to command general confidence, and whose position entitled him to ask (and enabled him to obtain) funds large enough adequately to carry out the restorations he undertook; and who, when these works were entrusted to him, found skilled and experienced clerks-of-works who were good antiquaries themselves, and carried them out with, I believe, as little damage to the architecture, and as much sound construction and faithful restoration as was possible. This cathedral-restoration practice was no doubt Scott's most important work, and it was work, so far as I am able to judge, which he did extremely well, far better, for example, than it had been done by an architect and antiquary of European reputation across the Channel.

To see or hear Scott at his best, it was necessary to see him at Westminster Abbey. I well remember on the occasion of the first visit paid by the Architectural Association to the Abbey, the pains he took to see that the preliminaries were all in order; and when, at his request, the President and I called on him the day before the proposed visit, he startled us by saying: "I think we had better go down to the building and lay out the route." He then and there left

¹ A paper read by Professor T. Roger Smith, at a meeting of the Leeds Society of Architects, and published in the *Architect*. Continued from page 199, No. 435.

everything else, walked down with us to the Abbey, summoned the clerk-of-works, and went through almost every portion of the building with us, so as to make sure that we understood the way in which the party would be led. He met us the following afternoon, and for about four hours led our party up and down and in and out; and when at last the endurance of some began to flag, it was not Scott, but the students who showed signs of fatigue.

The descriptions he would give on these occasions were admirable and were well delivered, for he would halt at a point of interest, wait till the party had clustered round him; and then with distinctness, and in a loud voice, different from the rather hurried utterance of his ordinary conversation, he would indicate what he wished us to look at, and pour forth from stores of knowledge which seemed inexhaustible, a flood of explanation, illustration, and criticism.

The best of many addresses on professional subjects which I have ever heard him deliver in public, were two papers read in the chapter-house of Westminster Abbey to parties of architects, on occasion of visits paid by the Conference of Architects. In 1876 he addressed us on the ancient examples of English architecture to be found in London. On another occasion he spoke on the varieties of vaulting to be found in the Abbey, and pointed out that, with one exception, every phase of vaulting current in the country was to be met with there. Nothing could exceed the learning, the simplicity, the directness shown in these two papers, and they produced a very great impression.

Hardly less effective were his lectures to the students of the Royal Academy. Happily these have been published in two goodly volumes, and their great value can be recognized by all. As actually delivered, there was not quite the same sense of perfect ease due to being on his own territory and addressing none but his own profession, which struck one so in the addresses given at the Abbey or at the Institute; there was, however, the addition of a marvellous set of drawings of great size and splendid execution, some notion of which may be got by examining the illustrations reduced from them in the published volumes.

Scott was always willing to engage in a competition for a work of importance, and he threw himself into such a struggle with the greatest ardor. The Government Offices' competition found him successful in obtaining a high position, though not the first, but ultimately the work was put into his hands. Hamburg Cathedral, Edinburgh Cathedral, the Albert Memorial, and the Midland Railway Terminus and Hotel are among his successes in competition. He tried hard for the Law Courts but failed, and he must have been engaged on very many others. I have a vivid recollection of calling on Scott, at his request, on the day when the competitive drawings for the Law Courts went in. The whole house in Spring Gardens was like a beehive with clerks drawing, painting, tinting, scratching out, and putting last touches; there were vans at the door, and men struggling with enormous strainers on the stairs and along the passages. In the midst of this busy turmoil, but in a room a shade less disturbed than the rest of the place, sat Scott, haggard, unshaven, and looking as if he and many others had been up all night, as I have no doubt had been the case. He was engaged writing his report, about a paragraph in which he wished to see me. While we were considering this, I well remember how Thomas Allom came in, fresh, bright and cheery, unwound himself from a long comforter, and promptly taking up a brush and his color-box, proceeded to finish up one of the perspectives with its last finishing touches, with a leisurely ease that formed a strange contrast to the hurry and pressure all round.

Sir Gilbert was a tall, well-built man, slightly inclined to be bald, of a fair complexion, with light hair. He had fine features, especially a well-cut mouth and chin, and a lofty, well-shaped head, with a high brow. His bright eye could light up with readiness. His manner was simple and unaffected; but there was at times a kind of hesitation about his address which was far, I believe, from being a true index of character.

Scott was buried in Westminster Abbey, as Barry had been before him, and Street was at a later and very recent date.

It is not so easy to form a just estimate of Scott's work now as it will be a generation hence. No doubt much of his ordinary church work suffered from hasty design and from being too much the work of his assistants; but his best churches, as for example the one built by him at Edensor, and Doncaster Church, are excellent. I have already said, or at least implied, that I consider the work he did in the restoration of our cathedrals his most important and in many respects his best work; and I have some reason to believe that he attached great importance to it himself. He had the good fortune to build two cathedrals, Hamburg and Edinburgh, but I have not had an opportunity of seeing either. If, however, Edinburgh is equal to the drawings he exhibited of it, there can be no doubt that it ranks high as a piece of sound, well-designed modern Gothic work.

His secular buildings include several very prominent ones, and some smaller. Of the latter, a very elegant example exists in Leeds in the shape of a banking-office. Glasgow University College, one of his largest piles of building, is certainly disappointing both in mass and in detail. His Foreign and Colonial Office, a Renaissance building, with many deficiencies in the eyes of a careful student of Italian architecture, has certainly the merit of a good deal of boldness in its principal front, and a simple plan.

The Midland Station and Hotel at St. Pancras seems to be the most successful of his secular works with which I am acquainted. The richness of many of its features and the boldness of the sky-line

make it one of the best modern buildings in London, and perhaps the best example of the application of Gothic to business purposes which has been carried out there on a large scale since the Houses of Parliament.

In the Albert Memorial, Scott has left behind him a work on which he managed to secure the co-operation of a large number of the first artists of the day, and which probably no other architect could have so enriched. It has not been the custom to be enthusiastic in its praise; but it is not the custom to be enthusiastic about any sort of artists or their works, except actors and actresses. Probably this Memorial will be considered, in after times, Scott's greatest success, and one of the architectural achievements of the century; and certainly I should be disposed myself to give it that praise, and to claim for Scott the merit of having conquered very great difficulties and produced a very striking monument.

We must not omit his literary work. In addition to other writings, Scott has the merit of having produced two of the best architectural books of the century. His lectures (already alluded to), published just after his decease, are equal to any piece of architectural analysis by Willis, or Sharpe, or Viollet-le-Duc, and his "Memorials of Westminster Abbey," a volume in which he enlisted the aid of several first-class men, is the best account of an ancient monument which has yet been given us by any writer.

TRANSVERSE STRENGTH OF TIMBER.¹—X.

No. 60.—Spruce, 4" x 12"; span = 17' 2"; length = 17' 8"; load distributed equally at twelve points; 16" on centres; beam had been seasoning in a room exposed to steam-heat for about two months. Weight of bridging on top of beam = 934 pounds (this, however, is taken account of already in the loads in the following table).

Tested by Professor Lanza and E. F. Ely, assistant.

Loads in lbs.	Deflection in inches.	Differences.	Remarks.
1200	.0000		
1500	.0387	.0387	
2500	.1769	.1373	
3500	.3122	.1362	
4500	.4431	.1309	
5500	.5814	.1385	
26000	—	—	Breaking load by tension and compression.

Modulus of rupture, weight of beam not taken into account = 7448 lbs. per square inch.

Modulus of elasticity = 1461039 lbs. per square inch.

Max. intensity of shear at neutral axis = 406 lbs. per square inch.

No. 61.—Hard-pine beam 8½" x 13½"; span = 24'; length, 24' 6". Trussed with a band of iron, 2" x ½" on each side; screwed on with lag-screws, as shown in figure.



Ends of straps bent over about two inches; weighed 1147 pounds; wood alone weighed 1009 pounds.

Tested by Professor Lanza and E. F. Ely, assistant.

Loads in lbs.	Deflection in inches.	Differences.	Remarks.
1092	.0000		
1592	.0244	.0244	
2092	.1028	.0784	
3092	.2356	.1328	
4092	.3762	.1406	
5092	.5395	.1633	
6092	.6820	.1425	
10092	1.2405	.5585	
11092	1.3918	.1513	
12592	1.9618	.5700	
28592	—	—	Breaking load by tension and compression.

If no allowance be made for the presence of the straps we should have:—

Modulus of rupture, neglecting weight of beam = 7466 lbs. per square inch.

Modulus of rupture, with weight of beam = 7706 lbs. per square inch.

Modulus of elasticity = 1886256 lbs. per square inch.

Max. intensity of shear at neutral axis, neglecting weight of beam = 178 lbs. per square inch.

Max. intensity of shear at neutral axis, taking into account weight of beam = 185 lbs. per square inch.

No. 62.—Hard-pine, green lumber, tapped two years; somewhat cracked at heart; from Savannah, Ga.; 4½" x 12½"; span = 19' 10"; weighed 58.3 pounds per cubic foot; estimated weight = 364 pounds.

Tested by E. F. Ely, assistant.

Loads in lbs.	Deflection in inches.	Differences.	Remarks.
271	.0000		
565	.0629	.0629	
1055	.1701	.1072	
1545	.2831	.1130	
2525	.4951	.2120	
3015	.6991	.1140	
3505	.7193	.1102	
3505	.7326	.0133	
4485	.9481	.2155	
4465	1.1684	.2203	
6445	1.3896	.2202	
15461	—	—	Breaking load by compression.

Modulus of rupture, neglecting weight of beam = 9102 lbs. per square inch.

¹ By Gaetano Lanza, Professor of Applied Mechanics, Massachusetts Institute of Technology. Continued from page 178, No. 433.

Modulus of rupture, taking into account weight of beam = 9209 lbs. per square inch.
 Modulus of elasticity = 2037939 lbs. per square inch.
 Max. intensity of shear at neutral axis, neglecting weight of beam = 232 lbs. per square inch.
 Max. intensity of shear at neutral axis, taking into account weight of beam = 237 lbs. per square inch.

No. 63.—Hard-pine, green lumber, 4 3-16" x 12 3-16"; length, 20' 4"; span, 20'; weight, 326 pounds; somewhat cracked at the heart. Initial deflection under 200 pounds, roughly measured, and found to be 0.0359 inches.
 Tested by Messrs. Leonard & Underwood.



Loads in lbs.	Deflection in inches.	Differences.	Remarks.
273	.0000		
573	.0813	.0813	
1073	.2231	.1413	Left over night.
973	.2123		Load next morning.
1073	.2401		
2073	.5151	.2750	
2573	.6623	.1472	
3573	.9590	.2877	
4573	1.2378	.2878	
14073			Breaking load by tension.

Modulus of rupture, neglecting weight of beam = 8145 lbs. per square inch.
 Modulus of rupture, with weight of beam = 8239 lbs. per square inch.
 Modulus of elasticity = 1899339 lbs. per square inch.
 Max. intensity of shear at neutral axis, neglecting weight of beam = 207 lbs. per square inch.
 Max. intensity of shear at neutral axis, with weight of beam = 211 pounds per square inch.



No. 64.—Hard-pine, green lumber, 4 1/2" x 12 1/2"; span = 19' 10"; length = 20' 2" (Savannah), lot A; somewhat cracked at the heart; weighed 301 pounds.
 Tested by Messrs. Leonard & Underwood.

Loads in lbs.	Deflection in inches.	Differences.	Remarks.
273	.0000		
573	.0721	.0721	
1073	.1800	.1079	
2073	.4277	.2477	
2573	.5509	.1232	
3073	.6762	.1253	
4073	.9235	.2473	
5073	1.1756	.2521	
10573			Breaking load by tension.

Modulus of rupture, neglecting weight of beam = 6098 lbs. per square inch.
 Modulus of rupture, taking into account weight of beam = 6185 lbs. per square inch.
 Modulus of elasticity = 1917979 lbs. per square inch.
 Max. intensity of shear at neutral axis, neglecting weight of beam = 157 lbs. per square inch.
 Max. intensity of shear at neutral axis, taking into account weight of beam = 161 lbs. per square inch.

No. 65.—Hard-pine, green lumber, Savannah, lot B, 4' x 12 1/2"; span = 19' 8"; weighed 295 1/2 pounds; loaded at centre.
 Tested by Mr. Underwood.

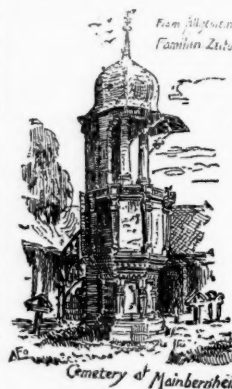


Loads in lbs.	Deflection in inches.	Differences.	Remarks.
573	.0000		
1073	.1067	.1067	
2073	.3497	.2430	
3073	.5528	.2031	
4073	.7820	.2292	
5073	1.0170	.2350	
6073	1.2507	.2337	
11573			Breaking load by compression.

Modulus of rupture, neglecting weight of beam = 6782 lbs. per square inch.
 Modulus of rupture, including weight of beam = 6869 lbs. per square inch.
 Modulus of elasticity = 1976717 lbs. per square inch.
 Max. intensity of shear at neutral axis, neglecting weight of beam = 177 lbs. per square inch.
 Max. intensity of shear at neutral axis, including weight of beam = 183 lbs. per square inch.

THE OLD FORTRESS OF PHILIP-AUGUSTUS, PARIS.—The works commenced three years ago at the Louvre, under the direction of M. Guillaume, the architect of the museum, for the strengthening and cleansing of the basement and cellars, have occasioned the discovery of the south-east and south-west towers of the old fortress of Philip-Augustus, the site of which had hitherto been placed on the river-bank, just above the space now occupied by the Jardin de l'Infante. This portion of the old Louvre, as well as a hall with two naves and a central pillar, some ruined walls, brackets with sculptured heads, the remains of the curious drain which crossed the court of Francis I, and emptied into the Seine after passing under what is now Room No. 4 of the Venus de Milo Gallery, a stone sculptured with the knife representing a trumpet of the time of Charles IX, and bearing date 1567, a cistern, and other curiosities have been carefully preserved, and will be exhibited permanently in the basement which will shortly be thrown open to the public.—*The Architect.*

COLOR DECORATION FOR INTERIORS.



Cemetery of Mainzheim

MR. GEORGE AITCHINSON, A. R. A., in a lecture on color applied to the interior of buildings delivered before the Royal Academy, a part of which was published in the *American Architect* for March 15, said that in employing marble as color, the same principles had to be adopted as in the use of any other color; the work must either be in monochrome or harmonious contrasts of few or of many colors. Two main difficulties had to be contended with: restriction in the number of colors when the marbles were monochromes, and the difficulty of judging which was the color and which the tone in the variegated sorts. This difficulty was intensified when the different colors found in the same piece were wide apart in tone and large in size. Marbles did not afford all the prismatic colors, for neither blue, indigo, nor true violet could be obtained, and amongst the secondaries we could scarcely be said to have a brown. The few colors, tints, and tones at hand formed the whole palette; but it must be admitted that it was want of skill on our part if we could not produce endless and beautiful harmonies with marble.

In arranging colored marble one should always do so with the material itself on as large a scale as possible, and with the pieces in relative proportion to the real work. With pigments, by changing the tones and tints of a discord they could be made to harmonize; but with marbles the colors were fixed, and harmonies must be obtained by proportioning the masses. No time should be grudged by the colorist in getting the proportions exact. Considerable contrasts were allowed, even if not called for, as the outer marbles absorbed so much light that different colors of the same tone were generally indistinguishable. Genoa green and Belgian blue, or Genoa green and breccia d'Hercoleum, if not exposed to a very strong light, might be taken for the same color. In full or dark harmonies white was the colorist's jewel, and should be used sparingly. In light harmonies black occupied the same place, and pure statuary might be married with darkish marble by means of veined or pavonazzo. Even bastard statuary would make a gradation from pure statuary, as would hachette, grand antique, Belgian blue, or Nero di Scia-vezza, with black and a lighter-toned marble. A gold inscription was made into a beautiful harmony with white by the use of veined marble, at the Magazin du Printemps.

There was always dignity about marble, and it possessed many other qualities, but, with the exception of St. Ambrosio, at Genoa, the lecturer never saw a marble interior that produced the effect of gladness upon his mind, and even then he was ungrateful enough to think it looked too joyous for a church. If the architect aspired to make interiors lovely, magnificent, or solemn by means of a material so superb, costly, and enduring as marble, he must spare no pains in acquiring the requisite skill, and this skill was only to be gained by a conscientious study of the successful examples in existence. The success has not been attained, it would be seen, by the use of color alone, but by the observance of the whole of the complex conditions comprised in proportion, size, composition and lighting.

A colored sketch was excellent as a memento, but one might possess this charming accomplishment of sketching without any perceptible addition to his architectural skill. The architect needed to know the means by which the effect he admired was produced, just as the painter wanted to know how to reproduce the effect. He must copy the actual colors, and get the size, shape, and juxtaposition of every piece of marble before he could have even the materials to reason on. A sketch was, at the best, but a vague and imperfect memorandum of the effect seen; copies and measurement told how the effect was produced in that particular spot with those particular proportions and sizes and that amount or quality of light. Beyond these should be noted the accessories which might materially assist the effect, although neither architecture nor decoration. And these studies, as Ruskin had said, were "not to be put into the storehouse for use, but into a gallery for study."

The Romans, when they got to Byzantium, were superb colorists. Could we look now upon San Vitale in its perfect condition, it would, doubtless, so far as its mosaics were concerned, be completely magnificent. St. Mark's, Venice, has perhaps the most perfect colored interior in the world, but time has done much for it; possibly if we could see it with its pristine polish, it would almost make our hair stand on end. In this church of St. Mark we had, however, not only marble, but the gorgeousness of glass mosaic. The marble decorations of the basilicas were, presumably, reproductions or paraphrases of the style used at Byzantium, and the effect sought was richness and vivid contrasts. The floors were mostly of white marble, adorned with Opus Alexandrinum. The shafts of columns were of various colored marbles, but as they were mostly borrowed antique columns, it was not clear whether they were so used from choice or necessity. The walls were ornamented with a framework of white marble, enriched with rude carving and barbarous mouldings, and the panels were mostly of green or red porphyry, covered with glass mosaics.

One of the most perfect specimens of a purely marble interior in

existence was the Mausoleum of the Medici at Florence. It was of truly funeral magnificence, and, although a perfect museum of marbles and precious stones, they were mostly confined to the apse and the Medici arms. The unique effect was gained by the use of two deep reds and one each of dull light red, black and white, yellowish and greenish gray, orange yellow, cold gray, and green, combined in carefully thought-out proportions. It was the fashion of people who were color-blind or indifferent to color to call the marble-lined churches of the Jesuits vulgar or tawdry; but these adjectives should always be regarded with suspicion when applied to marble, for it required almost superhuman blunder to effect such a result, although it had been achieved.

When color was used, it was, speaking architecturally, wrong to make contrasting forms, or primary and secondary ones of the same color; but in judging of the effect of an interior, the goodness or badness of the color was the important point, and all other solecisms were of secondary importance. In an interior, as in a picture, if the colors were good, we might afterwards see whether its other qualifications for examination were equal; but if the colors were bad, we turned away in disgust.

In the Scalzi at Venice the architecture was abominable, but as a colored effect the interior was magnificent. The double pilasters of the nave were of the violet breccia of Rondone, with gilt caps and bases; the entablature was white and gold, with a Rondone frieze; the columns of the high altar were red Languedoc, with a gold baldachino; the altar-rail was white, with gray breccia balusters, and alternate red and green panels in the pedestal. In the chapels of the nave, black and white were treated in the boldest manner. The pavement was red and white Verona marble laid lozengewise; the ceiling was vaulted, and had strips of Rondone on either side of the ribs. This ceiling was white and gold, with sprawling angels in color, the dusty quality of the paint harmonizing badly with the polished marble.

The Jesuits' Church at Venice was of a pleasant, cool color, but the effect was somewhat spoiled by the lurid-colored gold of the ceiling and the gigantic gold glint at the top of the walls. The nave pilasters, their caps and bases, plinths, and entablature were all of gray stone, and the walls between were lined with a white marble, inlaid with a brocade pattern in verde-antique. The colors in front of altar were also of white marble similarly inlaid; the twisted columns of the altar-piece were of verde-antique, and the baldachino was of white marble with scales in verde-antique and Brocatello; the pavement was white Verona marble, inlaid with a geometrical pattern in verde-antique.

Pisa Cathedral was delightful from its milk-white base, and at Siena we had more vigorous color, the green and white stripes of the shafts being narrower than at Pisa, and the interior was more varied in color by the blue of the ceiling powdered over with gold stars, by the dark-brown wood-work, and by the color from its stained-glass windows. At the church of Santa Maria in Cosmedin at Rome, usually called Bocca della Verità, and also at St. Lorenzo e Muro, in the same city, the columns are of various marbles, mostly precious ones, and in both churches Opus Alexandrinum is introduced. At the Madeleine the lighting was entirely from the eyes of the domes; the architecture was of gray stone, warmed by marble, gilding, dark-brown oak, pictures, and polished metal; as a colored whole the high altar was too white.

The lecturer concluded with a few remarks on marble mosaic. Almost all the basilicas of Italy had, he remarked, the improvements of open Alexandrinum, *i. e.*, white marble inlaid with interlacing geometrical patterns, sometimes guilloches, in which the large circular, square, or irregular-shaped slabs were mainly of red or green porphyry, and were connected by bands or winding lines made up of squares and triangles of porphyry and other precious marbles. The effect was peculiar and striking. At St. Mark's, Venice, much of the paving was pure mosaic of small cubes or tesserae of stone or marble. The latter class of mosaic gave us the means of imparting pleasant color and refined form to the floors of buildings without destroying their scale, as the large slabs and squares would when used in our cathedrals.

Mosaic also relieved us from the vile encaustic tile. Lately Messrs. Burke & Co. had introduced marble mosaic for figure subjects on walls, by cutting very small and accurate cubes of all sorts of colors, tints and tones, and, though from the absence of blues from marble the range of color had hitherto been restricted, we could now permanently give to white marble any color we chose. Where a rich sobriety of coloring was wanted, this marble mosaic was very valuable. The lecturer expressed his thanks to Mr. Robinson, and to Messrs. Burke & Co., Messrs. White & Sons, and Messrs. Boucereaau, for the fine specimens of marbles lent him to illustrate his lecture.

In conclusion, Mr. Aitchison said: I trust I have succeeded in convincing you that this beautiful and noble material (marble) has been too grossly overlooked, and that in future we may hope to see the grand halls and chambers of the public and sumptuous private buildings made permanently lovely, dignified, and enduring by its use; that our pure colorists may bestow more care and attention on the perfection of this sort of colored decoration, and on the invention of new harmonies and gamuts of color, so that English color may be as distinctly marked by the flavor of its native isle as English music or English literature. I also trust that I have shown that the use of marble is not inconsistent with, but rather provocative of, the use of glass and marble mosaic, colored tiles, stained-glass, oil paintings, and statuary.

I may add that I do not believe that an indulgence in color and a proper cultivation of the visual fine-arts tend in any way to enervate or demoralize a nation. We cannot by our utmost efforts produce a loveliness or a splendor to vie with that which Nature spreads out for our enjoyment in every landscape and in every sunset. — *Building News.*

UNDERGROUND TELEGRAPHS IN FRANCE AND GERMANY.



IN France the laying down of underground telegraphs was not begun until 1880. In this respect the Germans had the start, seeing that between the years 1875 and 1881 they had laid down an underground telegraph net of 3,400 miles, which in 1881 connected Berlin with 220 places, the entire length of the wire being about 23,210 miles. In laying this net Germany was originally actuated by considerations of a military nature; it was thought necessary to guard against atmospheric disturbances which might interfere with the mobilization of the army, and also against raiding parties of the

enemy, who, in case of war, might readily cut overhead wires. Underground telegraphs have incontestable advantages. They are not touched by violent atmospheric disturbances. Their conductive power and insulation are scarcely in any way affected by change of the weather, and thus it may be said that nothing could be more regular than the working of such wires. This truth has been fully recognized in Germany, for the subterranean telegraph net of Central Europe has at no time experienced any of the effects produced of late years on the overhead wires of Northwestern Europe by the violent storms which have raged at various times.

The first proposal for laying down an underground net for France was made in 1880 by the Minister of War, who at that time asked for a credit of 8,000,000 francs for that purpose. The aggregate length of the net is to be 3435 miles. At this moment the eastern lines, which are most urgent, are finished, and a good deal of progress has been made with those of the north and northeast. Nearly 2,500 miles are now complete, and it is hoped that by 1886 the whole network will be complete.

The following are the arrangements adopted for the underground net: The conductor is formed by a kind of cord made up of seven copper wires, ranging from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter. Copper was chosen (the same as in the submarine cable) on account of its conducting power being far superior to that of iron. According to the precedent of submarine cables, this copper-wire cord is covered over with a layer of gutta-percha. These conductors, thus made up, are inclosed in a jacket of tanned jute and tarred hemp. In this way excellent little cables are formed, which preserve the wires from all external influences. On the main lines from two to four of these cables are inclosed in cast-iron tubes held together by lead unions. These tubes, having been made thoroughly waterproof, are laid about 4 feet below the surface of the ground. On the less important lines only one cable is wanted, which is protected by a jacket made of wire, and sunk directly in the ditch. In some instances underground cables are absolutely necessary. Thus, in the case of fortified cities, all outlying forts must be connected by means of cables that could be affected by no external influences. This precaution is now taken everywhere. Underground telegraph lines are, as a matter of course, much more expensive to lay down than overhead telegraphs. On the other hand, the cost of maintenance of the former is almost nil. The plant of the French is claimed to be much better than that of the German lines, as appears from the statement laid before the French Parliament by the Postmaster-General in 1882, which is as follows:

"We have benefited by the experience acquired by our neighbors in the construction of these lines. Our cables possess a much greater electrical power than theirs, owing to the greater thickness of our conductors. On this account our neighbors begin to copy us, and by imitating the types of conductors chosen by us from the outset. Nevertheless, our telegraph cables will involve no greater expense than those of the Germans. This result we have obtained by having our cast-iron tubes made at French works, and intrusting French makers with the construction of our conductors and their inclosures. In this way France has been endowed with a new and perfectly French industry, and, owing to the adoption of these means, we have succeeded in laying down our cables at a cost scarcely in excess of that of the German cables."

In France the working of the underground lines is most regular; still, some precautionary measures are required which differ from those that are necessary in the working of overhead telegraphs. Special arrangements have to be made in the instruments, and these have given very satisfactory results. With one of Hughes's instruments a speed is reached of from 118 to 120 revolutions per minute between Paris and Lisle, a speed equal to the rate at which overhead telegraphs are worked. On the two wires connecting Paris and Lisle together the "turnover" amounts to about 100 telegrams per hour; with the Hughes instrument some 600 telegrams are transmitted every day between Paris and Nancy, and with the Morse apparatus a daily average of 125 is obtained between Paris and Donet. In point of fact, the high-speed instruments work quite as well with underground

cables as with overhead wires; and, seeing that the former are sheltered from all atmospheric and other meteorological disturbances, there is reason to believe that, on the whole, very much better returns are obtained from underground than from overhead lines.—*The Iron Age.*

A CORRECTION.

AKRON, O.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Gentlemen,—Permit me to correct an error in your issue of April 16th, which states that the apartment-house recently erected in Newark, N. J., and of which Mr. Paul G. Botticher is the architect, was the "first of its kind" in that city; whereas the Aldine apartment-house on Broad and Lombardy Streets was erected in 1881; Mr. William Halsey Wood, architect.

Yours truly,

WILLIAM HENRY ARCHER.

THE PROPOSED ARCHITECTURAL ALLIANCE.

MACON, GA., April 29, 1884.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—I think if your "open-letter" had been on a slip that could have been signed and returned it would have been differently treated; as it was, it really failed to present itself to me as a duty involving any immediate action. But I not only believe, I also practise what you teach in regard to competitions, and furthermore, I do not keep dumb silence when such farces are being played around me, but do what I can, as vigorously as I can, to call attention of the public to the dishonest and discreditable character of the performance. I hope you will not relax your efforts to secure unity of action among the profession in this matter, and perhaps the good results that follow may lead the architects of the country to appreciate the value of concerted action in general, as illustrated by almost every trade or profession but theirs. So far the bond that unites architects together appears to be not even a rope of sand, but a rope of quicksilver, of which many of the particles appear actively to abominate each other.

It has been almost a surprise to me of late years on visiting the offices of architects in some of our larger cities to be received with kind cordiality and frankness, but I come home again and go to work professionally on a desert island. Yours truly, A. B.

[We felt obliged to publish our "open-letter" of April 5, last, in the columns of *American Architect* as we did, because we could not discover any pretext under the cover of which we could make use of our publishers' money for printing and mailing the special circular letter which "A. B." suggests, though we very well know that a sealed circular would draw out a greater number of replies. We have been much surprised to find that many architects instead of mailing a postal-card saying simply, "I will join in the movement," or some such brief form of assent, have taken the trouble to transcribe at length the conditions of the professional agreement. A postal-card is all that is needed.—Eds. AMERICAN ARCHITECT.]

NEW YORK, April 30, 1884.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Your editorials in your issue of 26th inst., referring to your open letter to architects of 5th inst., suggest the following reflections:—

1st. Any such combination for the specified, or any other purpose is delusive; because there is no certainty that the conditions imposed by any pledge would be scrupulously observed by the very persons who are the cause of complaint.

2d. Any such combination assumes the existence of a profession whose members have identical interests, and that is composed of properly educated individuals. I, for one, am unwilling to join in any movement fathered by such a heterogeneous crowd as would include the *soi disant* architects of the United States.

3d. Why should architects as a body seek to establish conditions from which the rest of mankind are exempt. I find that my clients are entirely converted to my view of professional responsibility, and of the reciprocal responsibilities of architect and client, before they have been long engaged in any building project, because the true principles governing the relations of architect and client are founded on common sense.

4th. Any attempt on the part of any profession or calling to discount public education by creating a corner in the market, is certain in my opinion to interfere with that education which in the long run is the only sure cure for any abuse.

I am perfectly willing that you should publish this letter if you see fit to do so.

Yours,

ALEX. F. OAKLEY.

[1. We are pleased to find that our estimate of professional honor is somewhat higher than that entertained by Mr. Oakley. We have a very distinct belief that the majority of mankind at large is hardly less honorable than, and respects its word and bond as closely as, the minority; and we have an equally distinct belief that a professional education is not usually discovered by the public courts to be inevitably the first step in a criminal career.

2. Any one taking part in a competition can hardly maintain that he does not do so with the hope of obtaining the job and as a consequence making money, and we suppose that so far as this goes Mr. Oakley and "the *soi disant* architect" are on the same footing. Many *soi disant* architects (and who in this country is not *soi disant*?) are honest and even capable; because these honest and capable men are *soi disant* architects will Mr. Oakley refuse to be considered either honest or capable?

3. Singularly enough, Mr. Oakley does not seem to see that the movement we have suggested so far from seeking "to establish conditions from which the rest of mankind are exempt" is intended to do nothing more nor less than to bring architects within the protection of the conditions from which the rest of mankind are, most happily, not exempted. Can Mr. Oakley name any profession or class of men—bar convicted felons—who by the public are expected to perform a large amount of valuable work for which they can claim no compensation?

4. We are unable to see how an attempt to prevail on the public to honestly pay for services by which it profits can be called an attempt to "discount public education." To our mind it is rather placing a premium on public education as it would show to the best instructed building-committee that it can obtain adequate service only by paying for it.

In speaking of "creating a corner" Mr. Oakley has succumbed to the attractions of a catch-word. The prime motive of those who "corner" any thing is to force up the price of such thing, while the movement we suggest does not concern any increase of compensation to a competing architect—except so far as to raise such compensation from *nil*, as now, up to the standard adopted in other countries.—Eds. AMERICAN ARCHITECT.]

NOTES AND CLIPPINGS.

WASHINGTON MONUMENT.—The work of laying stone on the Washington monument was resumed April 28, at a height of 410 feet, the point reached at the suspension of work last fall. A course each day will be laid during favorable weather. Enough stone is prepared to raise the structure to a height of 470 feet.

A SILENT PEAL OF BELLS.—The chime of bells of St. Joseph's Roman Catholic Cathedral, Buffalo, N. Y., has been silent for some years, and a movement is now on foot to erect a tower where they can be properly hung and heard. The chime came from Paris, and cost about \$25,000, but the tower in which it was placed was not adapted for it, and the bells have never been used as intended.

THE DWELLINGS OF BOSTON.—The subjoined statistics of Boston have been carefully compiled by Mr. Denis H. Morrissey, Clerk of the Board of Assessors: Number of dwelling-houses, 43,986, of which 524, valued at \$3,755,200, were vacant May 1, 1883. Hotels, 76; and family hotels, 153. 209 houses were being erected; 3,347 store buildings and 5,102 miscellaneous buildings. Of the number of dwellings, 35,157 are valued at less than \$10,000, 4,100 between \$10,000 and \$20,000, 856 between \$20,000 and \$30,000, 449 between \$30,000 and \$40,000, 241 between \$40,000 and \$50,000, 169 between \$50,000 and \$100,000, 14 over \$100,000, and 37 hotels.

THE EXCAVATIONS AT THE SITE OF CARTHAGE.—A Parisian correspondent says that the archaeological researches on the site of ancient Carthage, conducted by Messrs. Salomon Reinach and Ernest Babelon, have brought to light a number of objects of historical and artistic importance. Conformably to the instructions of the French Institute, this scientific mission has been chiefly occupied in determining the relative levels of the Roman and the Punic soil on the site of Carthage. The great accumulation of rubbish and stones which forms the upper layer of the Carthaginian soil renders the work of excavation long and difficult. Five metres deep a series of wells, cisterns, and cellars of the Punic epoch has been discovered.—*Exchange.*

HOUSE VENTILATION.—An extended description appears in *The London Lancet* of Dr. Hogg's ingenious plan of warming and ventilating dwellings. According to this none of the windows are to be opened, and there is but one fireplace, viz. that in the kitchen. Underneath the hall a large passage is used as the intake of fresh air, where it can be cooled in summer by ice or water spray, while in winter it is warmed by hot steam-pipes, economically heated by a small coke stove; the air then passes up into the hall from which it is separated only by an iron trellis-work, and travels into every room of the house by apertures made in the skirtings and cornices. In the ceiling of each room there are one or two openings and exhaust shafts, leading to the foul-air chamber in the roof of the house, the exhaust suction being produced by a large shaft which runs from the foul-air chamber down to the back of the kitchen fire, where the heat of the boiler and the fire suffice to attract the air. From the back of the kitchen fire, in the basement of the house, the air again travels up, a square brick shaft or chimney conveying it through the roof and into the open; in the centre of this shaft is a circular metallic flue which carries away the smoke of the kitchen fire, and this flue, always more or less heated, stimulates the current of air.

THE CATHEDRAL OF RIMINI.—Nowhere over this extraordinary edifice, reared professedly to the glory of God, but in reality reared to the glory of the Malatestas, is there a sign that this is the house of the God of the Christians. Everywhere it is marked by the characteristics of that pagan sentiment which seems oddly to have moved its founder. In place of the emblems of Christianity there are in all directions the cipher of Sigismondo's mistress intertwined with his own, mythological allegories representing the perfections and talents of this same Isotta, and sarcophagi of certain forgotten personages, which Sigismondo intended to be the nucleus of a pantheon in which the most illustrious corpses of Italy would repose in a circle around himself. St. Michael crushing the dragon wears the face of Isotta under his helmet on one bas-relief; on another Sigismondo himself appears in a triumphal car as a pagan divinity; the goddess Ithana leads her train over the altar of a chapel of the Holy Sacrament; while the signs of the zodiac, the Seven Planets and their divinities, and Force, Prudence, Science, Music, Astronomy, and even Grammar are allegorically represented, Sigismondo having composed a poem in early life in honor of Isotta, in which he invoked all the heathen gods and goddesses, the planets, the zodiac, the heroes of antiquity, all living things, down to the very beasts of the field, to plead his cause and win her to yield to his passion, and desiring thus to perpetuate in marble and terra-cotta the prevailing sentiment of that poem.—*From the May "Manhattan."*

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.]

297,568. COMPOSITION FOR STAINING AND PRESERVING WOOD. — Samuel Cabot, Jr., Boston, Mass.
297,574. SPIRIT-LEVEL. — Leonard L. Davis, Springfield, Mass.
297,605. FASTENER FOR MEETING RAILS OF SASHES. — Oliver S. Judd, New Britain, Conn.
297,620. AUTOMATIC FIRE-ESCAPE. — Geo. W. and Frank P. Murphy, Kenney, Ill.
297,631. MODE OF WEAVING METALLIC BARS. — Henry Davidson Plimso, New York, N. Y.
297,632. BURGALAR-ALARM. — Wm. H. Reiff, Philadelphia, Pa.
297,633. TURNING-LATH. — John B. Romans, Nashville, Tenn.
297,636. WEATHER-STRIP. — Joseph H. Rowlett, Richmond, Ind.
297,640. WRENCH. — Friedrich Schmeann, Philadelphia, Pa.
297,641. BRICK-MACHINE. — Frank W. Shelley, Anderson, Ind.
297,642. SAND-AUGER. — John Siekler, Otterbein, Ind.
297,643. SEWER. — Thomas L. Stark, Chicago, Ill.
297,660. LOCK. — Frederick Ballin, Detroit, Mich.
297,664. MITE-BOX. — Wm. L. Boyer, San Francisco, Cal.
297,671. BRICK-MACHINE. — Cyrus Chambers, Jr., Philadelphia, Pa.
297,707. VENTILATOR. — Conrad Muller, Hamburg, Germany.
297,710. FIRE-ESCAPE. — Matthew C. O'Connor, New Haven, Conn.
297,713. SHUTTER-WORKER. — John Pool, Elizabeth City, N. C.
297,719. COMBINED LEVEL AND BORING-GUIDE. — Albert Root, Hamden, Conn.
297,720. SASH-BALANCE. — S. Howland Russell, New York, N. Y.
297,730. FIRE-RESISTING WEATHER-BOARDING. — Peter Teglio, Charleston, S. C.
297,731. ELECTRIC DOOR-OPENER. — Jesse H. Bunnell, Brooklyn, N. Y.
297,774. DOOR. — George E. Filer and Albert H. Neff, Sheldon, Io.
297,790. FIRE-ESCAPE LADDER. — Horace P. Griswold, Providence, R. I.
297,791. CONCRETE COMPOUND FOR PAVING STREETS, WALKS, ETC. — Levi Haas, Chester, Pa.
297,805. STAY-ROLLER FOR SLIDING DOORS. — Samuel Ide, Medina, N. Y.
297,806. ILLUMINATING-TILE. — Jacob Jacobs, New York, N. Y.
297,813. ADJUSTABLE PROSCENIUM. — Imre Kiralfy, New York, N. Y.
297,822. PLASTERING. — James Morrison, Jr., New York, N. Y.
297,837. FIRE-ESCAPE. — Francis Day Parmelee, Hillsdale, Mich.
297,843. FIRE-ESCAPE. — Chas. Ingliss Pittman, Halifax, Nova Scotia, Canada.
297,857. FIRE-ESCAPE. — George Sinfeld, Portland, Ore.
297,862. FASTENING FOR CORRUGATED METAL-SHEETS. — John Smith, Kansas City, Mo.
297,863. PORTABLE HOUSE. — Otis Hall Smith, Cambridge, Mass.
297,875. LADDER. — Geo. P. Thorp and Milton E. Thorp, Paola, Kans.
297,917. BRICK-MACHINE. — Cyrus Chambers, Jr., Philadelphia, Pa.
297,946. SPRING-HINGE. — David Nickel and Chas. Zattan, Morris, Ill.
297,953. SASH-FASTENER. — Isaac J. Saltzer, Prescott, Pa.

SUMMARY OF THE WEEK.

Baltimore.

DWELLINGS. — Chas. L. Carson, architect, is preparing drawings for Geo. A. Blake, Esq., for 4 three-story and mansard brown-stone buildings, 22' x 70', to be erected on North Charles St.; cost, \$12,000 each.
Wm. F. Weber, architect, is preparing drawings for Wm. L. Stork, Esq., for a three-story brick dwelling, with blue-stone and terra-cotta finish, 40' x 62', to be erected on Mt. Royal Ave.; cost, \$7,000. Also, for same party, 8 three-story brick dwellings, with stone and terra-cotta trimmings, 18' x 51' each, to be erected on Mt. Royal Ave.; cost, \$32,000.
BUILDING PERMITS. — Since our last report fifty-one permits have been granted, the more important of which are the following: —
C. Kieffer, three-story brick building, s e cor. Preston and Ensor Sts.
Jos. Winkle, three-story brick building, s s Paca St., between Warner and Fremont Sts.
Morgan & Bros., 8 two-story brick buildings, w s Patapasco St., s of Randall St.
Stephen McGowan, two-story brick building, w s Paca St., between Hamburg and Cross Sts., and 3 two-story brick buildings, s s Hamburg St., between Paca St. and Merrett Alley.
John S. Grindall, 2 two-story brick buildings, rear s s Riverside Ave., between Cross and Clement Sts.

M. Plitt, 6 two-story brick buildings, w s Boulder Alley, s of Robert St.
Wm. F. Stubbs, 10 two-story brick buildings, s s Columbia Ave., between Cross and Parkin Sts.
G. C. Hershman, 2 two-story brick buildings, e s Chesapeake St., between O'Donnell and Elliott Sts.
G. O. Wilson, three-story brick building (square), n w cor. St. Paul and Lanvale Sts.
Wm. H. Wein, 3 three-story brick buildings, w s St. Paul St., n of Lanvale St.
G. W. Moke, Jr., 3 three-story brick buildings, w s Mount St., s of Mulberry St.
J. Henry Snyder, 4 three-story brick buildings, e s Pennsylvania Ave., between Wilson and McMechen Sts.
Jas. S. Forbes, three-story brick building (square), w s Eutaw St., between Preston and Hoffman Sts.
J. W. Dansbury, three-story brick-building, n s Mulliken St., between Broadway and Ann St.

Boston.

BUILDING PERMITS. — Wood. — Skinner St., near South St., Ward 23, for A. C. Warner, dwell., 25' 6" x 32' and 12' x 15', two-story pitch; W. H. Warner, builder.
Allen St., near Brown Ave., Ward 23, for J. J. Haley, dwell., 24' and 28' x 32' 6", two-story pitch; David Perkins, builder.
Ballou Ave., near Jones Ave., Ward 24, for M. McLaughlin, dwell., 20' x 30', two-story pitch; W. McLaughlin, builder.
Sheridan Ave., s w cor. Chestnut St., Ward 23, for Albert Haberstroh, dwell., 29' 8" x 34' 6", two-story pitch; J. B. Shaw, builder.
Kittredge St., near Washington St., Ward 23, for Mary H. Greenlaw, dwell., 15' x 20' and 23' x 30', two-story hip; A. M. Greenlaw, builder.
Marion St., No. 206, Ward 1, for Richard Pinkham, dwell., 21' x 36', three-story flat.
Centre St., near Church St., Ward 23, for Geo. Tilton, wagon-shed, 20' x 60', one-story pitch; W. S. Mitchell, builder.
Athens St., No. 138, Ward 13, for Timothy Hourihan, dwell., 25' x 35', three-story flat.
Mt. Vernon St., No. 33, rear, Ward 23, for Thomas O. Grady, stable, 25' x 30', two-story pitch.
Fuller St., near Washington St., Ward 24, for O. S. Gushee, dwell., 15' and 28' x 35' 6", two-story pitch; E. F. Moulton, builder.
Winthrop St., near Dennis St., Ward 20, for Wm. Agnew, dwell., 28' x 29', three-story flat.
Harvard Ave., near Fairington Ave., Ward 25, F. S. Wingate, 2 dwell., 14' 6" and 20' x 55' 6", two-story pitch; Ira G. Hersey, builder.
Winship St., near Union St., Ward 25, for James O'Neill, 2 dwell., 19' 6" x 30', two-story pitch; James O'Keefe, builder.

Brooklyn.

BUILDING PERMITS. — Broadway, Nos. 721 and 723, e s, 50' s Park St., 2 three-story frame stores and tenements, tin roofs; cost, each, \$5,700; owner, Lorenz Leopold, Wall St.; architect, Th. Engelhardt; builders, U. Maurer and M. Metzger.
President St., n s, 154' 9" e Sixth Ave., three-story sanitary, gravel roof; cost, \$16,000; owner, Wm. M. Thabon, Henry St.; architect, H. B. Eastman; builders, T. B. Rulan and Hart & Boyd.
Eckford St., w s, 59' 6" n Van Cott Ave., 3 three-story frame tenements, gravel roofs; cost, total, \$10,500; owner, Miss Mary Cook, 29 West Twenty-fifth St., New York; architect, G. W. Anderson; builders, J. D. Anderson and Randall & Miller.
Myrtle St., No. 122, three-story frame tenement, tin roof; cost, \$4,300; owner, Wm. Mullon, 124 Myrtle St.; architect, C. L. Smith; builders, M. Phelan and P. Lattenburger.
Tompkins Ave., s w cor. Gates Ave., four-story brick store and tenement, tin roof; cost, \$13,000; owner, John Deterling, De Kalb Ave., cor. Tompkins Ave.; architect, I. D. Reynolds; builders, P. Carlin & Son and M. C. Rush.
Fifth Ave., s w cor. Union St., three-story brick store, tin roof; cost, \$6,000; owner and builder, Michael Kavanagh, 689 President St.; architect, R. Dixon.
Eighth St., n s, 87' 10" e Seventh Ave., 15 two-story brown-stone dwellings, tin roofs; cost, each, \$5,500; owner, Chas. Long, 367 Seventh St.; builder, J. F. Wood.
Hooper St., s s, about 150' e Lee Ave., three-story brown-stone dwellings, tin roofs; cost, \$20,000; owner, John M. Rankin, 165 Lee Ave.; architect, E. F. Gaylor.
Halsey St., n s, 350' e Nostrand Ave., 3 three-story brown-stone dwellings, tin roofs; cost, \$6,000; owner, M. Shirden, 216 Herkimer St.; architect, Mr. Osborne.
Fourth Ave., n w cor. Bergen St., 5 three-story brick stores and tenements, tin roofs; cost for all, \$25,750; owner, Albert Seales, 378 Van Brunt St.; architect and carpenter, Louis Bonert.
Greene St., No. 203, three-story brick tenement, tin roof; cost, \$5,000; owner, George Ehrenhard, 205 Greene St.; architect, Henry Vollweiler; builders, Gately & Smith and James Dolg, Jr.
Dean St., n s, 103' w Grand Ave., three-story brick tenement, tin roof; cost, \$3,000; owner and mason, Park Donlon, Dean St.; architects and carpenters, Leonard Bros.
Ninth St., s s, 110' e Seventh Ave., 5 three-story brown-stone dwellings, tin roofs; cost, each, \$7,500; owner, Chas. Long, 367 Seventh St.; builder, J. F. Wood.
Jefferson St., s s, 500' e Nostrand Ave., 5 three-story brown-stone dwellings, tin roofs; cost, each, \$8,000; owner and builder, Harman Phillips, Brooklyn; architect, Isaac D. Reynolds.
St. Mark's Ave., s s, 250' e Nostrand Ave., two-story brick dwell., slate and tin roof; cost, \$20,000; owner, John C. Richards, architect, L. B. Valk; builders, Jas. Ashfield & Son.
Baltic St., s s, 260' w Third Ave., three-story frame tenement, tin roof; cost, \$4,000; owner, Patrick Daily, Flatbush; architect and carpenter, Wm. Murphy; mason, Jas. Kenedy.
Kingsland Ave., No. 135, e s, 200' s Herbert St., three-story frame tenement, tin roof; cost, \$3,500; owner, Edward Blanner, 58 Monitor St.; architect and builder, Jacob Schoch.

Union St., s s, 80' w Bond St., three-story brick dwell., tin roof, wooden cornice; cost, \$6,000; owner and builder, Jas. Riley, cor. Bond and Union Sts.; architect, Robt. Dixon.

Central Ave., n e cor. Ralph St., three-story frame store and dwell., cement and gravel roof; cost, \$4,000; owner, Peter Fisher, 137 Ralph St.; architect, Jos. T. Miller; builders, Owen Leonard and P. J. Canavan.

Graham St., No. 73, e s, 100' n Park Ave., four-story frame tenement, tin roof; cost, \$4,000; owner, Philip O'Reilly, on premises; architect, Wm. H. Burhans.

Adams St., n s, 50' e Bushwick Ave., four-story frame tenement, tin roof; cost, \$5,000; owner, Henry Huether, 252 Ten Eyck St.; architect, J. J. Smith.

Bushwick Ave., Nos. 887 and 889, e s, 25' s Palmetto St., 2 three-story brick dwellings, tin roofs; cost, each, \$4,000; owners, Blaisdell Bros., 891 Bushwick Ave.; architect, Th. Engelhardt; builders, Geo. Cutler and Robert Wright.

Lugger St., s s, 75' w Court St., 2 three-story frame tenements, tin roofs; cost, \$9,000; owner, Edward Keogh, 482 Court St.; builder, Thos. Keogh.

ALTERATIONS. — Prospect St., s s, 45' 3" w Charles St., add two stories, also interior alterations; cost, \$4,000; owner, Thos. J. Tinney, 73 Hicks St.; builder, W. O'Grady.

Washington Ave., No. 265, three-story brick extension, slate and tin roof; cost, \$10,500; owner, S. S. Beard, 6 Bedford Ave.; architect, M. Thomas; builders, C. Carman and W. S. Wright.

South Ninth St., n s, about 200' w Second St., five-story brick extension, tin roof; cost, \$8,500; owner, William Vogel, South Ninth St., near Second St.; architect, E. F. Gaylor; mason, J. Rodwell; carpenter, not selected.

Chicago.

BUILDING PERMITS. — A. Anderson, three-story dwell., 461 South Clark St.; cost, \$4,500; architect, E. Moss; builder, J. J. Rogan.
A. Wodrich, two-story store and dwell., 191 Webster St.; cost, \$5,000; architect, H. Rahwaldt.
M. R. Loveland, three-story dwell., 207 Third Ave.; cost, \$3,000; architect, W. A. Furber; builder, A. Lavenski.
J. Rathbone, two-story dwell., 2815 Prairie Ave.; cost, \$8,000; architects, Wheelock & Clay; builders, J. Barker & Son.
F. Busch, three-story dwell., 206 Sedgwick St.; cost, \$7,000; architect, J. Otter; builder, A. Fagerlund.
H. Clausenius, two-story dwell., 147 Cass St.; architect, Otto Matz; builders, Mueller & Scheel.
A. Nelson, three-story store and dwell., 69 Chicago Ave.; cost, \$9,000; architect, T. Karis; builder, C. J. Bergh.
A. Sientema, three-story flats, 122 and 124 Noble St.; cost, \$3,500.
J. Tucker, two-story dwell., 52 Thirty-fifth St.; cost, \$7,000; architects, Wheelock & Clay; builder, A. Hagerman.
I. N. Russell, 7 one-and-one-half-story cottages, 13 to 27 Fairfield St.; cost, \$8,500.
J. P. Spafford, 2 two-story dwellings, 195 and 197 Winchester Ave.; cost, \$12,000; architect, H. M. Hansen; builder, M. Ottens.
C. Muhcke, 2 two-story dwellings, 2334 and 2336 Dearborn St.; cost, \$6,000; architects, Furst & Rudolph; builder, H. Appel.
Wm. Flemming, 2 three-story flats, 177 and 179 Sangamon St.; cost, \$10,000; architects, Furst & Rudolph; builder, H. Appel.
D. O'Connor, three-story store and dwell., 259 Market St.; cost, \$10,000; architect, J. Otter; builder, A. Fagerlund.
L. Eliel, two-story dwell., 3440 Indiana Ave.; cost, \$8,000; architect, S. M. Randolph; builder, M. H. Liff.
St. Clemens Church, one-story church, 1925 to 1933 State St.; cost, \$15,000; architect, V. Arndt; builder, C. Thiele.
H. Keller, two-story dwell., 3407 Indiana St.; cost, \$3,000; architect, P. W. Ruehl; builders, A. Katz & Co.
C. Seipp, 3 two-story basement dwellings, 2623 to 2627 Calumet Ave.; cost, \$15,000; architect, V. Arndt; builder, C. Thiele.
Thos. Clark, 5 two-story dwellings, 320 to 328 Marshall Ave.; cost, \$15,000; architect, Thos. Clark.
H. Botsford, three-story store and dwell., 16 Clark St.; cost, \$4,500; architect, W. A. Furber; builder, J. Griffiths.
S. Barber, 2 three-story stores and flats, 94 and 96 Egan Ave.; architect, J. Branch; builder, S. Van Kirk.
M. O'Connor, two-story dwell., 136 Ontario St.; cost, \$4,000; architect, Shipman; builder, Winkler.
C. J. Singer, two-story addition, 124 Lincoln Ave.; cost, \$3,000.
H. B. Arend, three-story store and dwell., 353 Twelfth St.; cost, \$16,000; architect, P. W. Ruehl; builder, F. Hoppe.
J. M. Wauzer, two-story dwell., 915 and 917 Monroe St.; cost, \$6,000; architect, M. Palmer; builder, C. A. Moses.
C. Hahn, two-story dwell., 759 Twelfth St.; cost, \$3,500.
J. McDonough and J. C. Goodwin, 2 two-story flats, 447 and 449 Leavitt St.; cost, \$7,000.
J. Schmidt, three-story store and dwell., North Ave., cor. Robey St.; cost, \$6,000; architects, Kley & Hauser.
S. Beinhardt, three-story dwell., 162 Centre Ave.; cost, \$4,000.
Edmunds & Hay, two-story factory, 524 and 526 Thirteenth Pl.; cost, \$4,500; architect, J. H. Moore.
J. A. Carey, two-story store and dwell., 215 West North Ave.; cost, \$4,500.
U. P. Smith, two-story dwell., 3219 Groveland Park Ave.; cost, \$8,500; architects, Wheelock & Clay; builder, A. H. Lowden.
H. Sexton, two-story store and dwell., 3754 State St.; cost, \$4,750; architect, H. D. Seifert.
J. Brown, three-story store and dwell., 300 West Lake St.; cost, \$10,000; architect, H. L. Klay; builders, Kreigh & Demath.
F. Wenter, three-story factory, 115 West Fourteenth St.; cost, \$19,000; architect, P. W. Ruehl; builder, J. Rogers.

E. B. Baldwin, two-sty' dwell., 500 Congress St.; cost, \$4,000; architect, S. M. Van Osdel.

E. Marlow, 3 one-sty' dwells., 3300-3306 Parnell Ave.; cost, \$4,000.

M. Ruzicka, three-sty' dwell., 97 Nineteenth St.; cost, \$5,000.

F. Doovak, two-sty' dwell., 1115 Genesee St.; cost, \$3,000; builder, G. A. Johnson.

G. Gulbranson, 3 three-sty' flats, 87 West Huron St.; cost, \$4,500.

Chas. Eberle, three-sty' store and flats, 613 Sedgwick St.; cost, \$8,000; architect, B. F. Boss.

W. Rowell, two-sty' dwell., 496 Taylor St.; cost, \$3,000; architect, J. B. Bourgeois.

John Lynch, two-sty' dwell., 569 North State St.; cost, \$15,000.

Cincinnati.

HOUSE.—House for Mr. Louis Van Antwerp; cost, \$7,000; James Griffith & Sons, builders; Frederick B. White, architect, New York.

BUILDING PERMITS.—P. Hickey, three-sty' brick dwell.; cost, \$5,000.

Dr. Jas. I. Taylor, addition and repairs, cor. of Seventh and Elm Sts.; Charles Crapney, architect; cost, \$7,500.

F. Schell, three-sty' brick dwell., s e cor. Price and State Ave.; cost, \$5,000.

F. H. Bastian, three-sty' brick dwell., Eighth St., near Carr; cost, \$6,200.

H. Frey, two-sty' brick dwell., Harrison St., near Broadway; cost, \$5,400.

F. Hanna, four-sty' brick dwell., 569 Walnut St.; cost, \$6,500.

Jewish Synagogue, n e cor. of Richmond and Mound Sts.; A. C. Nash, architect; cost, \$15,000.

J. S. Armstrong, five-sty' brick store, Sycamore, bet. Fourth and Fifth; cost, \$20,000.

11 permits for repairs; cost, \$9,500.

Total permits, 22; total cost, \$57,100.

Total cost to date, \$1,010,450.

Cleveland.

BANK BUILDING.—Bank, on Euclid Ave., for the Savings and Trust Company, three stories high; cost, \$65,000; Geo. H. Smith, architect; Thos. Simmons, contractor.

ALTERATIONS.—Alterations on old City Hall Building on the Public Square; cost, \$25,000; Levi S. Scofield, architect; Uhl & Koestung, contractors.

DWELLINGS.—Frame dwells., for Geo. H. Baker, cor. Case Ave. and Garden St.; cost, \$7,000; F. C. Bate, architect.

Two frame dwells., on Woodland Court, for Fred. Keppler; cost, \$5,000; F. C. Bate, architect.

New York.

CHURCH.—Ground has been broken for the Church of the Holy Rosary, in East One Hundred and Nineteenth St.; Rev. James Byron will be pastor.

METROPOLITAN MUSEUM OF ART.—Mr. Howe has introduced in the Assembly a bill, and had it ordered at once to a third reading, to enable the Board of Estimate and Appointment to expend \$550,000 for the enlargement of the Metropolitan Museum of Art. The same bill took a similar course in the Senate a day or two ago. It is likely to pass.

HOUSES.—For the Union Theological Seminary, 3 brick and brown-stone dwells., 10' x 54' are to be built on the s s of Seventieth St., adjoining the Seminary, at a cost of about \$60,000; Messrs. Jas. Brown Lord and Wm. A. Potter, architects.

On the s s of Sixty-eighth St., 20' x 7' of Third Ave., 10 three-sty' and basement residences, 20' x 52', are to be built for Messrs. W. F. Schermerhorn and R. T. Auchmuty, under designs of Mr. Henry J. Hardenbergh.

On the s s of One Hundred and Thirtieth St., near Seventh Ave., a three-sty' stone-front house is to be built for Mr. C. M. Earle, from designs of Mr. Jas. E. Ware.

For the Rev. E. C. Houghton, a three-sty' and basement residence, 20' x 57', is to be erected on the s s of Sixty-ninth St., 175' w of Ninth Ave., at a cost of \$7,500, under designs of Mr. G. M. Huse.

Mr. Terence Kiernan will build 3 four-sty' brown-stone houses, on the s s of Eighty-fourth St., near Ninth Ave., at cost about \$40,000.

STORE.—At Nos. 511 to 547 Pearl St., a seven-sty' building, with basement and sub-basement, is to be built for the proprietors of Puck, at a cost of \$150,000, from designs of Mr. Albert Wagner.

BUILDING PERMITS.—Gravesend St., No. 92, one-sty' brick stable, gravel roof; cost, \$3,000; owner, Jacob Thumann, 96 Gansevoort St.; architects, Axford & Cramer; builder, J. Buckley.

Eighty-eighth St., n s, 257' w Ave. A., 2 four-sty' brick and brown-stone tenements, tin roof; cost, each, \$15,500; owner, Jacob Wiks, 509 East Eighty-seventh St.; architect, John Brandt.

One Hundred and Thirty-seventh St., s s, 36' e St. Ann's Ave., three-and-one-half-sty' brick and stone trimmed dwell., tin roof; cost, \$10,000; owner, John Elstner, 110 East One Hundred and Twentieth St.; architect, Chas. Baxter.

Sixty-fourth St., s s, 231' e First Ave., 3 five-sty' brick and stone trimmed tenements, tin roofs; cost, each, \$15,000; owner, Michael Whelan, 934 East One Hundred and Thirty-eighth St.; architect, Charles Baxter.

Fourth Ave., s w cor. Seventy-ninth St., 2 four-sty' brick dwells., tin roofs; cost, \$45,000; owner, Jas. V. S. Woolley, 75 East Seventy-ninth St.; architect, J. E. Ware.

Lexington Ave., Nos. 583, 585 and 587, two-sty' brick building, gravel roof; owner, Edward Rafter, on premises; architect, J. H. Friend.

Norfolk St., No. 31, rear, five-sty' brick tenement, tin roof; cost, \$8,000; owner, Bertha Solomon, 2 Baxter St.; architect, W. Graul.

Fourth Ave., s e cor. Nineteenth St., brick and Ohio stone flat, brick and concrete roof; owners, J. Lawrence Aspinwall, 85 Clinton Pl., Treasurer and Secretary of the Florence Apartment Company, and Mrs. U. B. Matthews, 101 Fifth Ave.; architects, Renwick, Aspinwall & Russell.

Madison Ave., s s, 72' 59" s Seventieth St., four-sty' dwell., tin roof; cost, \$75,000; owner, Isaac Stern, 32

to 36 West Twenty-third St.; architect, William Schickel.

One Hundred and Seventh St., s s, 350' e First Ave., three-sty' brick stable, gravel roof; cost, \$5,000; owner, Robinson Hill, 201 Park St., Brooklyn.

Ninety-first St., s s, 65' w Madison Ave., 2 four-sty' brick and brown-stone dwells., slate and tin roofs; cost, each, \$25,000; owner, Emil Roessert, 608 Fifth St.; architects, Macleay & Davies.

East Fifty-fifth St., No. 106, rear of corner house and near Fourth Ave., four-sty' brown-stone dwell., tin roof; cost, \$3,500; owner, Samuel Montgomery, on premises; architect, F. T. Camp.

Cannon St., Nos. 31 and 33, 2 five-sty' brick tenements, tin roofs; cost, each, about \$16,000; owners, Henry Gucker, 183 Second Ave., and J. P. Schwelkert, 409 West Fifty-first St.; architect, H. Gucker; builder, J. P. Schwelkert.

Christopher St., No. 118, five-sty' brick building, tin roof; cost, \$15,000; owner, John Totten, 240 West Forty-ninth St.; architect, C. F. Ridder, Jr.

East Twenty-fifth St., No. 338, five-sty' brick tenement, tin roof; cost, \$15,000; owners, Watkins Bros., 304 East Forty-first St.; architect, F. T. Camp.

First Ave., n w cor. One Hundred and Seventh St., five-sty' brown-stone tenement, tin roof; cost, \$15,000; owner, John Cullen, 207 East One Hundred and Sixth St.; architect, J. Brandt.

One Hundred and Thirtieth St., n s, 90' w Sixth Ave., three-sty' and basement Connecticut brown-stone dwell., tin roofs; cost, each, \$17,000; owner, Samuel O. Wright, 128 West One Hundred and Twenty-sixth St.; architects, Cleverdon & Putzel.

One Hundred and Thirtieth St., n s, 170' w Sixth Ave., 3 three-sty' Connecticut brown-stone dwells., tin roofs; cost, \$15,000 each; owner and architect, same as last.

Greenwich St., Nos. 83 and 85, running through and including Nos. 88 and 90 New Church St., four-sty' brick stable, tin roof; owner, American Express Co., Jas. C. Fargo, President, 56 Park Ave.; architect, E. H. Kendall.

East Fourth St., No. 98, five-sty' brick tenement, tin roof; cost, \$15,000; owner and builder, Jos. Schaeffer, 83 Second Ave.; architect, Julius Roekell.

Cypress Ave., s w cor. One Hundred and Forty-ninth St., three-sty' frame tenement and store, tin roof; cost, \$6,500; owner and builder, Geo. C. Gladius, 518 Cypress Ave.

Cypress Ave., s s, 200' s One Hundred and Forty-ninth St., three-sty' frame dwell., slate and tin roof; cost, \$4,500; owner and builder, same as last.

One Hundred and Forty-ninth St., s s, 51' w Cypress Ave., two-sty' frame dwell., tin roof; cost, \$3,500; owner and builder, same as last.

First Ave., s e cor. Thirty-fourth St., 2 five-sty' brick tenements and stores; cost, \$23,000; owners, Jas. Plunket, 24 Rutgers St.; architect, John B. Suook.

Ridge St., No. 67, six-sty' brick tenement and store, tin roof; cost, \$20,000; owner, S. Bachrach, 375 Grand St.; architect, Wm. Graul.

Third Ave., No. 2378, two-sty' brick store, tin roof; cost, \$8,000; owner, James Ayer, 203 East One Hundred and Twenty-eighth St.; architect and builder, A. B. Marshall.

Fourth Ave., n w cor. Seventy-second St., 5 four-sty' brick and stone front dwells., tin roofs; owner, Francis A. Croft, 42 West One Hundred and Twenty-eighth St.; architect, John G. Prague.

Montgomery St., Nos. 31 and 33, five-sty' brick tenement, tin roof; cost, \$14,000; owner, Geo. Graham, 263 Henry St.; architect, Page Inslee.

Ninety-third St., s s, 30' w Ave. A., one-sty' brick pumping-house, gravel roof; cost, \$3,000; owner, Jacob Cupper, s s e cor. Fifth Ave. and Ninety-third St.; builder, Adam Weber.

First Ave., s w cor. Eighty-second St., five-sty' brick tenement and store, tin roof; cost, \$18,000; owner, Martha Gelston, 336 East One Hundred and Fourteenth St.; architect, J. H. Valentine.

First Ave., w s, 20' s Eighty-second St., 3 five-sty' brick tenements and stores, tin roofs; cost, each, \$16,000; owner and architect, same as last.

Twenty-fourth St., s s, 81' 09" e First Ave., 3 five-sty' brick tenements, tin roofs; cost, each, \$16,000; owner, Jos. P. Murray, 315 East One Hundred and Sixteenth St.; architect, J. H. Valentine.

Gouverneur St., No. 36, four-sty' brick tenement, tin roof; cost, \$11,000; owner, J. N. Martin, 320 Madison St.; architect, E. W. Greis; builders, C. Lockman and Grissler & Fausel.

New Chambers St., No. 82, four-sty' brick tenement and store, tin roof; cost, \$10,000; owner, Elizabeth D. De Lancey, by W. D. Edmonds, attorney, 20 Union Sq.; architect, J. E. Ware.

West Fourteenth St., No. 101, four-sty' brick dwell. and store, slate and cement roof; cost, \$3,650; owner, Wetmore Estate, Chas. E. Ahrens, attorney, 255 Washington St.; architect, Chas. D. Maroni.

One Hundred and Fourth St., n s, 175' w Third Ave., three and part four-sty' brick and stone engine-house, tin roof; owner, City of New York Fire Department; architects, N. Le Brun & Son.

One Hundred and Twenty-sixth St., s s, 56' e Seventh Ave., 2 four-sty' brown-stone front dwells., tin roofs; cost, each, \$22,000; owner, Chas. Batchelor, 177 West One Hundred and Twenty-sixth St.; architect, M. V. B. Fardon.

One Hundred and Twenty-sixth St., s s, 96' e Seventh Ave., 5 four-sty' brown-stone front dwells., tin roofs; cost, each, \$20,000; owner, architect, etc., same as last.

ALTERATIONS.—Fifth Ave., No. 82, or West Fourteenth St., No. 2, being s w cor., wall taken down and renewed iron work, interior alterations, and vaults under sidewalk; cost, \$50,000; lessees, W. Jennings Demorest, 21 East Fifty-seventh St., and Jos. I. Little; owner, Henry Van Schaick, Temple Ct., City; architect, W. H. Hume.

Madison St., Nos. 318 and 320, add one-sty' flat tin roof, also one-sty' brick extension, interior alterations, etc.; cost, \$6,500; owner, Jeremiah N. Martin, on premises; architect, E. W. Greis.

Broadway, No. 189, altered for offices, etc.; cost, \$21,000; owner, Wm. Rensen, Boreel Building; architect, H. R. Marshall.

Lexington Ave., s w cor. Forty-sixth St., repair damage by fire; cost, \$5,000; owner, Henry Klunen,

Chairman Board Trustees St. Peter's German Lutheran Church, 80 East Fifty-third St.; architects and builders, C. Graham & Sons.

St. Mark's Pl., No. 68, front wall raised, new iron cornice, carry up extension two stories; cost, \$5,000; owner, Carl Edel, 386 Broome St.; architect, J. Hoffmann.

Broadway, Nos. 265 and 267, take down present building (No. 267), and erect a five-sty' brick store and office-building, etc.; cost, \$30,000; owner, Orphan Asylum, City New York, Margaret T. Odell, 3rd directress, 3 West Thirty-seventh St.; architect, Geo. E. Harney.

Pier No. 45, North River, one-sty' extension on west end, and repairs; cost, \$4,000; lessee, Oceanic Steam Navigating Co., 37 Broadway; builder, John J. Coyer.

South Washington Sq., No. 60, raise attic to full sty' and a four-sty' brick extension, tin roof; cost, \$15,000; owner, Wm. S. Maddock, 313 East One Hundred and Twenty-third St.; architects, Macleay & Davies; builder, Jas. H. Banta.

Fifth Ave., No. 234, and West Twenty-seventh St., No. 1, extension to be raised two stories and interior alterations; cost, \$6,000; owner, A. Chatain, 30 West Twenty-third St.; architect, M. N. Cutter; builder, not selected.

Prince St., No. 197, raise attic to full story, new flat roof, new store front, and interior alterations; cost, \$7,000; owner, Margaret Leibold, 123 Prince St.; architect, Wm. Kuhles; builder, not selected.

East Fifty-seventh St., Nos. 239 and 241, three-sty' brick extension, tin roof, and interior alterations; cost, \$6,000; owner, Wm. Logelin, 49 Bowery; architect, Adam Weber.

Philadelphia.

CHAPEL-BUILDING for the East Montgomery Ave. M. E. Church, at Franklin Road and Cumberland St., 53' x 56', to be built of stone and tin roof, open-timber roof; plans by Hazlehurst & Huckel, architects.

HOSPITAL.—At cor. of Tenth and Fitzwater Sts., the Maternity Hospital will be built, to be a four-sty' brick building, 47' x 100', also the present old building will be remodelled; plans by Hazlehurst & Huckel, architects.

BUILDING PERMITS.—Waterloo St., n of York St., two-sty' dwell., 18' x 28'; D. Nerling, contractor.

Media St., cor. Fifty-eighth St., 2 two-sty' dwells., 14' x 32'; R. C. Doutrard, contractor.

Media St., w Fifty-fourth St., two-sty' dwell., 16' x 40'; R. C. Doutrard, contractor.

North Front St., No. 153, three-sty' store, 22' x 38'; C. P. Westerhood, contractor.

Howard St., s Lehigh Ave., two-sty' factory, 54' x 109'; Jas. McCartney, contractor.

Thirty-eighth St., n Haverford Road 2 two-sty' dwells., 18' x 37'; Jas. B. Rigner, contractor.

Thirty-seventh St., s Centre St., three-sty' dwell., 14' x 30'; Wm. Bunch, Jr., contractor.

Clementine St., e Amber St., 6 two-sty' dwells., 15' x 28'; Dickson Bros., contractors.

Bancroft St., s Dickinson St., two-sty' dwell., 14' x 30'; and stable, 16' x 30'; L. Rosch, owner.

Wayne St., No. 492, three-sty' dwell., 17' x 40'; J. C. Aldridge.

Fifteenth St., n Norris St., 20 three-sty' dwells.; 16' x 62'; F. W. Snyder, owner.

Spring Garden St., No. 3221, three-sty' dwell., 20' x 60'; E. J. Lynch.

Salmon St., No. 1350, two-sty' dwell., 18' x 32'; Thos. Cassidy, contractor.

Grape St., w Thirty-sixth St., 2 two-sty' dwells., 15' x 30'; A. R. Johnson, contractor.

Reese St., No. 2531, 2 three-sty' dwells., 14' x 38'; H. M. Martin, contractor.

Twenty-eighth St., cor. Jackson St., 2 two-sty' dwells., 15' x 34'; J. Pennypacker, contractor.

Long Lane, No. 1405, two-sty' dwell., 17' x 30'; R. McFarland.

Germanstown Ave., Nos. 2432 and 2434, 2 three-sty' dwells., 17' x 32'; D. W. Gaffey, owner.

Sixth St., cor. Somerset St., three-sty' dwell., 17' x 54'; D. Nerling, contractor.

Sixth St., n of Oxford St., two-sty' dwell., 16' x 44'; Jno. Dipple, owner.

Ashland Ave., bet. Manayunk Ave. and Pechin St., 2 two-sty' dwells., 18' x 44'; Jas. H. Coone, contractor.

Tower St., w of Twenty-first St., three-sty' dwell., 16' x 25'; Thos. McCouch, contractor.

Market St., Nos. 606 and 608, five-sty' addition to store, 38' x 100'; J. B. Doyle, contractor.

Jefferson St., bet. Munion Ave. and McCormick St., 2 three-sty' dwells., 17' x 30'; A. M. McCormick.

Reese St., n of Lehigh Ave., two-sty' stable, 33' x 37'; W. Bartholomew, contractor.

Vine St., w of Broad St., three-sty' warehouse, 51' x 95'; W. H. Hamm.

Thurlow St., w of Twelfth St., 2 two-sty' dwells., 15' x 26'; Thos. Grennan, contractor.

Fifth St., n of Vennago St., three-sty' dwell., 18' x 20'; A. F. Rau, contractor.

Darien St., s of Montgomery Ave., 6 two-sty' dwells., 13' x 35'; V. Lent.

Norris St., e of Gaul St., 3 three-sty' dwells., 19' x 28'; C. G. Harris, contractor.

Adams St., bet. Sharp and Terrace Sts., 3 three-sty' dwells., 15' x 30'; Thos. Haggerty, owner.

Fifth St., s w cor. Chestnut St., banking house, 55' x 103'; Geo. Watson, contractor.

Gorgas St., e of Musgrave St., three-sty' dwell., 18' x 48'; Martin Hetzel, contractor.

Twelfth St., No. 947, three-sty' dwell., 16' x 36'; A. Arnold, owner.

John St., e of Cooper St., 2 two-sty' dwells., 16' x 44'; McLaughlin & McNamara.

Brighthurst St., No. 157, 3 three-sty' dwells., 13' x 32'; W. H. Brunner, contractor.

Green St., No. 1911, fourth-sty' addition to dwell., 30' x 36'; Geo. W. Viss, owner.

Beach St., bet. Rush St. and Aramingo Canal, one-sty' storehouse, 30' x 103'; H. L. Franks, contractor.

Wolf St., w of Sixth St., 6 two-sty' dwells., 16' x 30'; W. J. Smith, contractor.

Locust St., w of Thirty-seventh St., 8 three-sty' dwells., 19' x 54'; W. S. Kimball, contractor.

De Kalb St., bet. Walnut and Locust St., 10 three-sty' dwells., 15' x 42'; W. S. Kimball, contractor.