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THE people of Newport have been agitated for a week or two past on the subject of the sanitary condition of their city. A child of seven years died recently with symptoms which strongly suggested Asiatic cholera, and the disease was reported as a sporadic case of cholera by the attending physician. At a meeting of the local medical society on the day before the child was attacked some severe resolutions were passed, censuring the city authorities for the filthy condition of the town in general, and particularly of certain streets, and the outbreak within twenty-four hours of what was pronounced by three physicians in consultation to be the most dreadful of all zymotic diseases gave special emphasis to the strictures of the society. The assertions of these and other medical men, that the condition of Newport was such as to invite Asiatic cholera, and that some portions of the city were as foul as the worst parts of New York or Boston, attracted the attention of the Newport Sanitary Protection Association, a body formed in imitation of those existing in Glasgow and other places in Great Britain, which first took the judicious step of inviting the opinion of Dr. Cabell of Virginia, President of the National Board of Health, upon the alleged cholera case, and then, after hearing his report, that although the symptoms and post-mortem examination were quite consistent with the theory of death from Asiatic cholera, he hesitated to pronounce it a case of the true epidemic disease, repudiated totally the imputations cast upon the healthfulness of the town. Meanwhile the physicians who made the first attack express their intention of following it up, and as the reputation of Newport for healthfulness is a matter of very great pecuniary interest to its citizens and real-estate owners, it seems as if the quarrel might become a long and bitter one.

AN interesting, and perhaps an important case is soon to be tried in Montreal. It seems that the by-laws of that city require the application of fire-escapes to all factories or hotels more than two stories high; but, as in so many other towns, this wholesome regulation is very feebly enforced, and among other buildings, the furniture manufactory of Azare Lavigne on St. Constant Street, which should have had a safety ladder, was allowed to remain without one until a certain day of last September, when it took fire and was destroyed. A certain sculptor, M. Louis Dion, was at work in the third story of the building, and having no proper means of escape suffered severe injuries from the flames. His face was scorched so that he has since lost the use of one eye entirely, and of the other partially, and besides the pain and disfigurement inflicted upon him, he was obliged to have recourse to medical and surgical aid to prevent even worse consequences. In his opinion the neglect of the city authorities to perform a duty which by the passage and promulgation of the ordinance they had publicly undertaken was one of the principal causes which led to his mutilation, and as an innocent citizen, who relied for his safety upon what the laws made for his guidance represented to him as the established order of things, and was deceived by them, and suffered in consequence, he now claims compensation in the sum of ten thousand dollars for what he has lost. To make matters

still worse for him, it is said that on the day of the conflagration the members of the fire-department were away on a picnic, and the engines arriving on the scene very late in consequence, and without their proper attendants, failed to give that service which he, with the other taxpayers of the city, was required to contribute the price of, and had a right to expect. We should be very glad to think that M. Dion had any chance of recovering his ten thousand dollars, not only for his own sake, but to show other municipal governments that a responsibility rested upon them for the enforcement of the laws enacted by them; and that the politicians' artifice of promulgating wholesome ordinances to satisfy the opinion of the better portion of the community, and then dispensing with the execution of them for private reasons of their own, may prove to have sometimes unpleasant consequences.

A SO-CALLED "competition" of sculptors for the honor of executing the Lincoln statue in Chicago, for which a legacy of thirty thousand dollars was left by the late Mr. Eli Bates, has had a result which rather amuses the artistic public and probably does not disturb the peace of mind of the gentlemen who have the matter in charge. Some time ago the trustees of the estate invited four American sculptors to submit designs. Two of these artists reside abroad, one lives in New York, and the fourth in Boston. Of the American residents, one positively declined to enter any such contest, and the other withdrew before he had done any work for the trustees. This left the matter entirely in the hands of the two exiles, whose drawings have now just arrived and are in the Chicago custom-house awaiting examination. The trustees, according to the Boston *Herald*, will, when they get ready, inspect the designs, "and if either suits them will select it." "If not, they will call for new designs." What the distinguished American sculptors residing abroad will have to say to this arrangement we should be interested to know, but they might as well understand that it will make no difference what they think. The trustees, we venture to say, like others of their kind, understand perfectly well what they are about. They are put in their places to make the best trade in statuary that they can,—one that will bear the criticism of all their business acquaintances. The sculptors may make all the fuss they please about "good faith" and "sacrificing their valuable time on the understanding that the competition was limited," and so on. If they understood anything of the kind, that was their own lookout, and, besides, the time of a man who is willing to spend it in struggling after a small chance of a job cannot be very valuable anyway. Nor would these trustees, more than any similar ones, be likely to waste money on expert juries: their other business has probably always succeeded best when they have used their own judgment instead of some one else's, and although this might be, perhaps, a different matter, still, they undoubtedly know enough to tell a handsome statue when they see it, and at any rate, the advantage of keeping the reins in their own hands is one which they would not forego under any circumstances. If these are not the opinions of the Chicago trustees, they are at least those of most similar bodies, and the sort of sculpture which best appeals to such sentiments already adorns half the public pleasure-grounds in the Northern States.

THE New York *Times* of a recent date contains a discussion of the relative cost of lighting by gas and by electricity, which presents the most intelligent *résumé* of the subject which we have yet seen. According to this, the average electric-arc lamp produces a light far cheaper than that derived from gas, but of a character too glaring and unsteady for domestic use. The light of the incandescent lamps of Swan, Edison and Maxim is about five times more expensive for equal quantities than that from carbon points, and including interest on plant, costs about seventeen per cent less than the rate usually charged for the same illumination from gas. This comparison, however, holds good only where electricity can be furnished on a large scale, as in the New York districts, and as gas can be manufactured at a price far below that at which it is now sold, it would seem that it had still a certain advantage in the rivalry which is springing up between the two systems. In fact, as the *Times* says, Mr. Edison, who is one of the most prudent of men, acknowledges this, and it is to meet the difficulty that the Edison Company has arranged to supply motive

power in connection with light in all its districts. In this business it has nothing to fear from the competition of the gas-companies, and little from that of the new steam-power corporations, and if it can sell motive power at a profit in the daytime, it can well afford to keep its engines running to supply light in the evening, at a small loss, if necessary, on the actual cost.

A SINGULAR misfortune has occurred to a small church in Andover, Mass., which seems to be in process of being eaten up bodily and swept away. The church was erected about six years ago, and is finished with what is said to be ash, but has more the appearance of chestnut, which often closely resembles the coarser kinds of ash. A year or two after its completion the sexton noticed little heaps of dust on the carpet near the walls. These grew more and more frequent, and appeared in various portions of the building, so that they had to be gathered up regularly every week, and on searching for their cause the wood of the base-boards and portions of the pews was found to be completely riddled with holes made by small, round, black or blue worms, the débris of whose borings fell out occasionally upon the floor in the form of dust. Unlike most boring worms, this species seems not to object to the taste of varnish, for the polished surface of the wood is pierced in thousands of places. The stock was regarded as completely seasoned and in good condition when put into the building, but it would seem that it must have contained the embryos of the insects, for the finish of the galleries is attacked equally with that of the ground floor. If any of our readers have met with a similar case we should be pleased to receive an account of it, and if any know of a remedy, the trustees of the church would be glad to avail themselves of it.

An interesting expedient was successfully used for laying the foundations for the new dry-goods store, the "Printemps," now building in Paris on the site of the one destroyed by fire last year. The new structure is to be entirely fire-proof, and although the disposition of the upper stories made it advisable to plan the foundation in a series of piers, it was necessary to make these piers very firm, and carry them down to a stratum of unquestionable solidity. The ground under the site was, however, of a character very ill adapted for deep excavation: It was a loose sand, saturated with water, and although the firm rock was found about six feet below the water-level, any removal of the sand for trenches was sure to be followed by caving in of the sides, and very probably by the under-mining of the adjoining buildings. It was therefore decided to employ for depositing the piers a modification of the caisson and air-lock now used in bridge-building. Tubes of sheet-iron, six to nine feet in diameter, and about six feet long, were provided, in number equal to that of the piers to be constructed. Each of these had at the top a projecting flange, by which it could be bolted to a hollow cone, also of sheet-iron, the joint being made tight with india-rubber. This cone had a man-hole door at the top, fitting air-tight, and over it could be placed a second cone, which was bolted to it, and also had an air-tight door. The space between these two cones formed the air-lock. The caisson-tubes were first placed in position, and the double cone was set up over one of them, and when all was made tight the workmen placed inside began to excavate under the rim of the tube. As this sank by its own weight, air was pumped into the cones in sufficient quantity to force back the water which would otherwise enter beneath, and the laborers thus worked in dry ground until the caisson had sunk to its hard bed. The excavated material, instead of being thrown out, was deposited in the bottom of the air-lock, occupying the narrow space between the lower part of the outer and inner cones. When all was excavated, a "béton tube" consisting of a small separate air-lock, with double doors, was attached to the man-hole of the upper cone. This was alternately filled with concrete through the upper door by workmen outside, and emptied into the bottom of the caisson by men stationed in the air-lock between the two cones, who opened the door of the lower cone simultaneously with the lower door of the béton tube. The laborers in the caisson spread and rammed the concrete as it fell, until the pier was complete; then they ascended to the outer air, the bolts were loosened, and the béton tube and the upper cone were lifted off. The removal of the upper cone allowed the excavated material, which had been deposited in the bottom of the air-lock, to slide quietly off on all sides, and the inner cone was then lifted and carried away, to be replaced on top of the

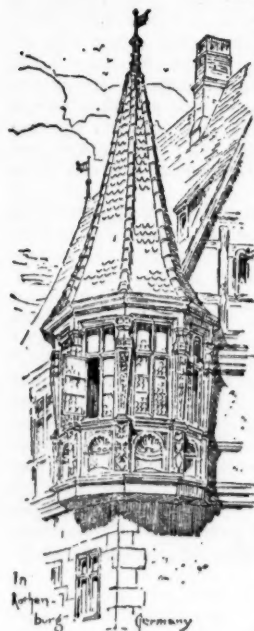
next caisson. This ingeniously simple contrivance answered its purpose admirably, and the time occupied for building each pier, including all the adjustments of the cones and tubes, was only about twenty-four hours.

THE city of Keene, New Hampshire, has adopted what is called the Memphis system of sewerage, and has contracted with the Drainage Construction Company of Boston to carry out the plans made by Mr. George E. Waring, Jr., for a system comprising between twelve and thirteen miles of public drains. The contract price is eighty-two thousand dollars, and the whole work is to be completed before the end of the present year. We presume that, as at Memphis, Field's siphon-tanks will be placed at the heads of the lateral drains, for flushing them out, and it will be interesting to see whether they can support the severe winter climate of New Hampshire without harm. The only objectionable feature of the enterprise seems to consist in the choice of an outfall into the Ashuelot River. It is true that this stream is not now so pure that a little additional defilement would injure it much; but if our rivers are ever to be restored to their natural wholesomeness, some one must make a beginning of keeping filth out of them.

THE New York *Tribune*, urged by the rapidity of the process of degradation which is going on at Niagara, publishes an appeal to all Americans, particularly to American women, to make a combined effort to rescue the great cataract from its impending fate. What form the endeavor is to take, whether that of raising subscriptions to purchase the property of the riparian owners, or of an irresistible appeal to the State or Federal authorities to take possession of the territory, we are not told; but our confidence in the success of the undertaking, in whatever form, is not unbounded. It is said that Lord Lorne is in favor of the project of forming an international park about the Fall, and the shore on the Canada side being as yet almost in a state of nature, the expense of acquiring and beautifying it would be comparatively small, so that if American enthusiasm should prove unequal to the task of saving its own portion of the cataract, it might still contribute with advantage to secure the future attractiveness of the Canadian half. Fortunately, also, the Canadian or Horse-shoe Fall is incomparably grander than the other, and with that undisturbed by the mechanism and filth of civilization, we might perhaps be content to leave the American Fall to the rag-pickers and tub-makers.

An important movement has been developed among the iron-workers of Pittsburgh, which within a single week has terminated the long and desperate strike in that trade, and bids fair to destroy the Amalgamated Association itself, to the decided benefit of the community at large, and not less of the workmen in iron. It seems that the manufacture of iron and steel is carried on in the mills by gangs of men, comprising puddlers and laborers, and finishers or rollers, who are highly skilled operatives and direct those associated with them. The number of rollers or finishers is small in comparison with that of the inferior workmen, and as they command high wages, which they have been obliged through their loyalty to the Amalgamated Association to forego for many weeks, it seems to have occurred very recently to some of the more thoughtful among them to inquire what benefit they were likely to derive from the strike. The question once raised was pursued farther, and it was soon obvious that their enforced idleness was for them simply the throwing away of so many dollars a week for the benefit, primarily, of the salaried officers of the Association, whose influence and importance depended upon the sheep-like docility with which their behests were obeyed throughout the trade, and in the second place, for the doubtful advantage of the lowest and most numerous class of workmen. Even among the general body of operatives the folly of such conduct was soon evident, but the executive committee refused to countenance the least departure from their dictates, until at last the finishers revolted in a body, and forming a society of their own in anticipation of their expulsion from the Amalgamated Association, returned to their work in the mills, to be followed immediately by all the more sensible of the other men, with the officers of the Association bringing up the rear, explaining in their usual style the entire harmony of all the proceedings with their intentions and wishes, and their willingness to continue their valuable services under all circumstances.

FROM BAYREUTH TO RATISBON.—NOTES OF A HASTY TRIP.—I.



one's pilgrimages. Too often they describe what has been rather than what now is visible—tell us what was to be seen in the days of the early Hohenstauffens or of Charles the Fifth, but give little indication as to the condition in which cities and churches now remain. Desecration and restoration have laid their hands on many of the most famous monuments of the past, wreaking such mutilation that a pilgrimage in their direction ends in woful disappointment, while on the other hand many monuments of less note and originally of less importance and charm are so much more nearly in their first condition that they more amply repay inspection. Then the technical treatises usually take small account of the minor treasures which abound in many buildings—the sculptures, carving and glass which are often as delightful and instructive as their architectural features proper. In my own case, I know, during the brief trip to which I refer, disappointment often came where the books had predicted most, and delight where they had said little or nothing to prepare for it. It may be that in coming summers one or two of my readers may be drawn to Bayreuth. I hope it for their sakes, and may counsel at the same time that they should visit these neighboring towns,—wishing only that they may have more time to study them than was granted me.

Western Bavaria is particularly interesting to the architectural student, for it was the centre of German life through so many centuries that its towns are filled with the relics of every period, from the earliest Romanesque down to the latest Rococo days. This fact has led, it is true, to the partial ruin of many of the oldest and most interesting structures; for in places where the current of life and activity remained strong throughout the seventeenth and eighteenth centuries as well as through those which went before, the heavy hand of the Jesuit Fathers was laid on almost every ancient work, bringing it more or less into conformity with their ideas of beauty and fitness; but the student of art in general and not of some one period in particular will often find, in the traces of many ages and of many different ways of thinking and of feeling, an attraction which mitigates in some degree his rage at the *baroque* redecorators of the Romanesque and pointed buildings. In many cases, moreover, the traces of their alterations have been removed in quite recent days, while their original works remain and are often picturesquely if not architecturally valuable. There are districts, of course, in which the best periods of Christian art may be more advantageously studied than in this portion of Bavaria; but I know of none where the student can so readily get, at one glance so to speak, a survey of every style and manner of working, from the very earliest down to the very latest, when architecture was a living, developing, if sadly decadent art. Another interesting fact about this region is the extremely varied character of the different towns. An hour's ride in the train takes one to a city which is not the counterpart of the one just left,—as would more or less truly be the case in almost every country,—but to a place in the strongest contrast with it, both in its general architectural character and its present condition as an abode of contemporary men. Würzburg and Ratisbon, for example, the tourist is apt to picture to himself as similar in their general aspect, while the fact is that no two cities could well be more diverse in every way. Bamberg is quite unlike either, Bayreuth again very different, and Rothenburg is a thing apart and quite by itself—a town the like of which, so far as I can tell, there is not in all Germany. To begin with the beginning, we have in Bayreuth a little, quiet, not especially picturesque town, with few relics of early days, and until Wagner made it a centre for thousands of pilgrims, almost

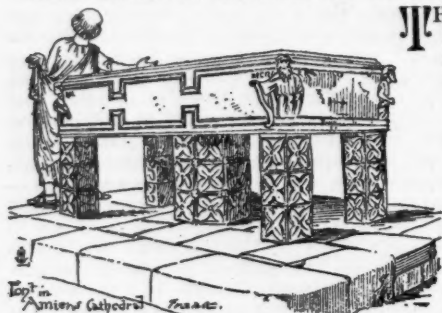
forgotten by the outside world and almost destitute of all activity: its chief buildings date from the last century only. Then a couple of hours' journey brings us to Bamberg, where one sees Romanesque art in all its glory and in an admirable state of preservation, together with some fine Renaissance buildings. There is more evidence of contemporary activity, and more to tell of various other centuries than in Bayreuth; but it remains as truly typical in its chief structures of the twelfth and thirteenth centuries as does the latter of the eighteenth. After this we expect to find in Würzburg something of the same sort—another shelved relic of former days, shut out from the main current of modern life; but to our surprise we find it bustling, gay and lively, a thoroughly vivid and modern town. In place of deserted, quiet streets, we see crowded market-places, brilliant shops, and throngs of alert, well-dressed, quite metropolitan-looking people; and architecturally it is the greatest hash—there is no other word—one can well imagine. Not only do buildings of every period abound, but every structure has been rebuilt and restored, and redecorated, and patched, and added to and conjured out of its original form and meaning till the eye becomes wearied and the brain confused trying to imagine what its original aspect may have been. But the want of purity and completeness is almost atoned for by a kaleidoscopic variety which for once is amusing, if not particularly instructive; and there are, moreover, few places so rich in minor art, especially in splendid iron-work, as Würzburg. Then going off the main track we make our journey to Rothenburg on the Tauber. Here I have no apology to make for giving my hasty comments, for this wonderful little town is almost unknown to the outer world. One or two of its buildings are, it is true, mentioned in a casual way in Lübke and other architectural writers, but no hint is given as to its unique attractiveness, and the guide-books which point the feet of the average student do not even mention it. I hope I shall excite my readers' interest a little when I say that it is an old walled town, full of late Gothic and Renaissance structures, scarcely touched by later builders, and giving the most perfect existent picture of an old German city as it appeared in the days of its renown. A fuller description of it must stand over, however, until we reach its gates in the regular course of our little trip. Thence we go back to the main road and on to Nuremberg. Here it is hardly necessary to say what awaits the tourist; but those who may have visited it in former years will surely be surprised by the changed aspect it wears to-day. I was there some ten years ago and knew very well that it had grown immensely in wealth and activity and commercial importance in the interim, but I was astounded at the change. There is no cause for alarm: its old buildings have not been interfered with to any extent, and in the way of minor art-treasures its attractions have been vastly added to; but whereas it was not long ago a quiet, dull, half-dead looking city, living all in the past and not at all in the present, it is now flourishing, active, with crowded streets, and on every hand the evidence of wealth and prosperity—the centre of many of the manufactures and semi-artistic industries which have so raised Bavaria's commercial reputation during the past few years.

Passing on to Munich we find a town which is completely modern and in the worst possible fashion—surely the ugliest, most ambitious yet characterless and uninteresting on the continent, the most painful to the eye of the architect or the lover of architecture in any form. One stays in it solely for the sake of what its ugly buildings hold, and shakes the dust off one's feet in the anticipation of finding something pleasanter at Ratisbon—or Regensburg to give it its proper name. I had been so often surprised, as I have said, during this and other trips in Germany that I did not know exactly what to look for—whether a modernized city like Würzburg or a quiet, peaceable, thoroughly German town like Bamberg; but it was neither of the two. Its narrow, crooked streets, with houses that were not new but had almost lost their original semblance through frequent coats of paint, looked more like those of some Italian town than like anything I knew north of the Alps. Its churches were legion, some in comparatively admirable condition like the Cathedral, others "Jesuitized" like those of Würzburg, and others, again, fallen into neglect and ruin, and prostituted to the most alien purposes. Its streets were full enough of people (at least on the Sunday which saw our visit), but all seemed of the lower classes and of particularly provincial aspect. There was neither the rush of modern activity to be felt nor the peaceful, dreamy, gone-to-sleep-and-don't-care-to-wake-up mood of such cities as Bamberg and Bayreuth. In their place a gloomy, sinister, dogged sort of temper seemed to breathe from its dark streets—a temper as of some discredited king sulking in gloomy obscurity. When we remember that Regensburg is, in truth, such a discredited monarch among cities, we forgive its sullenness; but that does not help to lift the weight it lays upon our spirits. Only inside the beautiful cathedral do they rise again,—and here comes a fresh surprise, for the "books" do not prepare one for all that is to be found there. But my introductory chapter is far too long already. It may serve, however, to illustrate—though most incompletely on account of its brief list of towns, the great diversity to be found within a narrow compass in this Bavarian region. Many other towns, equally diverse and interesting, lie close about those I have noted, and the tourist who travels in the track which leads to these cannot fail to find something worth seeing no matter where his feet may pause or his eyes may rest. A walking tour through this part of Bavaria would be most instructive. Only by some such means, indeed, could

one get to know its art,—for the tiniest village often holds something as well worth studying as is found in its larger neighbors.

M. G. VAN RENNELAER.

LE MUSÉE DE SCULPTURE COMPAREE, PARIS.



THE object of the Musée de Sculpture Comparée, just opened at the Trocadéro, is to place before the public, by the aid of casts, a complete history of the development of art from the earliest to the present time, the examples being so classified as to convey this idea

to the simplest minds. The late M. Viollet-le-Duc, who was the originator of the plan, thus explained it: "The art of sculpture is divided into three periods: imitation of nature by a more or less intelligent and refined interpretation; the Archaic period, during which special types were fixed upon and adhered to; and the period of emancipation, the search after truth of detail, and the perfecting of means of observation and execution. All nations have not entirely fulfilled this programme. Some have passed through all three phases of this development; some have only accomplished the first two, and have not passed the hieratic period: as for instance, most of the Oriental nations, the ancient Egyptians, and the Byzantines. There is a striking analogy between the sculpture of these two epochs, just as we find a strange likeness between that of the Egyptian or Archaic period of the Greeks and the Archaic period of the twelfth century in France. In the same way one finds most interesting forms of analogy between the development of sculpture amongst the Greeks from the time of Pericles and in France in the thirteenth century."

Again there is a curious resemblance between the French twelfth-century work and the Egyptian of the Archaic period: that comprised between the sixth and eighteenth dynasty, as also between the sculptures which date after the time of Phidias and the French ones of the thirteenth and fourteenth centuries. Thus, a statue from the principal door of Chartres Cathedral, placed near a hieratic Greek figure, appears to have been fashioned in the same school, by the manner of interpreting nature, by the conception of type, and by the execution. These great principles will be clearly shown when the museum is completed: at present most of the care of the organizers has been to illustrate the transformations of the French school of sculpture.

In architectural sculpture eleven schools are represented: those of Cluny or Burgundy, Provence, Saintonge, Ile de France, Champagne, Normandie, Picardie, Périgord, Languedoc, Auvergne and Poitiers. In sculpture, strictly speaking, the different characteristics are less striking; certain schools dominate, as for instance that of Provence, which merges into those of Périgord and Languedoc. During the twelfth century the sculptors of the Ile de France and of Champagne were superior to all others; but there came a change. The lay element crept in, hieratism was abandoned, architecture forsook monastic traditions and entered upon a new phase,—that of the study of nature,—a transition of the same kind as had taken place amongst the Greeks. From that period the schools intermingled, and since the fifteenth century only two have existed in France, viz.: the purely French and the Burgundian, which was strongly impregnated with Flemish elements.

In the first hall of the museum the visitor becomes acquainted with the début of the French school in the eleventh century. At that time an enthusiasm seized the nation to build and embellish churches and to decorate them in such a manner as to educate the people in the mysteries of religion. Hence over the principal doorway was generally placed a Last Judgment, that upon entering the church all might be reminded of death and eternity, and so be admonished to live a good life and escape the torments of hell, so graphically placed before their eyes. At the Trocadéro are several such compositions: notably one from the Cathedral of Bourges and another from that of Autun. In this latter God the Father is sitting in the centre; on his left are an angel and Lucifer weighing the souls of men in a balance; above are the judges. The souls belonging to the demon are seized by devils issuing from a sort of box. On the right hand are the redeemed rejoicing in their state of bliss, Paradise being represented by another little box, into which the elect enter by a small hole in the lower part. At the lintel is an angel who separates the good from the wicked; these latter, being clutched by great hands and tormented by the demon who thrusts them into hell, give vent to tears and lamentations, while the elect rejoice in their happiness and sing praises to the glory of God. All this is naïve and primitive, but it is not wanting in character or pathos.

The doorway of the Cathedral of Vézelay is also very remarkable: it represents God in glory surrounded by saints. Below are what appear to be the seven deadly sins, but it is not very clear.

Still what can two old men hugging coffers represent if not avarice? And the pig-headed personages must surely be intended for gluttons. Above is a scene familiar to every one in the middle ages — people bringing gifts of money and kind to the church and receiving their reward in the promise of the joys of heaven, while others who refuse any oblations are seized by devils and damned eternally in the flames of hell. These and the like were all subjects intended to help the people so to live that they might die well and thus escape the terrors of the infernal regions. Nothing was omitted: the joys of heaven were shown them as things to aim at; the horrors of hell as things to fear and dread. There was no mean between these extremes.

As one advances to the thirteenth century the style of decoration widens in idea and approaches more to nature; while during that century the change is so rapid that it almost amounts to a revolution. The people of France began to assert themselves, and they even attained certain rights, — few, it is true, but still there was an advance towards liberty of thought, and with that advance there was a desire to instruct themselves. Moreover the nation was just then, as an old historian remarks, "devoured with a desire to build." The edifices of the Romans, the Goths and the Franks were found heavy and clumsy; a wish for something lighter and more elegant seized the public mind, and so ogival architecture was perfected and a more thorough imitation of nature in sculpture was aimed at. Form was more carefully studied, expression was sought after, and drapery was made to represent the movement of the body beneath it. As examples of this development casts can be studied from the cathedrals of Reims, Amiens, Autun and Chartres, and the churches of Notre Dame de Corbeil, St. Pierre de Moissac (with its exquisite cloisters), and St. Madeleine de Vézelay; also a façade from Amiens, of the Blessed Virgin and the Infant Saviour surrounded by the twelve apostles, and another from Reims, a bas-relief of the decapitation of a martyr-bishop. This is very curious and dramatic: a woman lifts her hands to heaven to call witness to the crime just committed by the soldiers, while on the opposite side is the head of the bishop reposing upon the altar. Here again the composition is naïve, but the workmanship is excellent. From St. Pierre-sous-Vézelay is a fine figure of an old man in a long beard, of the thirteenth century; the central part of the western façade of the Church of St. Etienne, at Auxerre, thirteenth century, the figures of which are unfortunately much destroyed; the doorway of the cathedral of Chartres, representing God surrounded by the four evangelists and their emblems; the doorway of Notre Dame de Paris (the Resurrection); the figures which ornament the southern side of the Cathedral of Chartres; part of the base of the cathedral of Amiens, on which are the signs of the zodiac; the splendid columns of the cathedral of Chartres and a doorway from the same church supported by statues forming columns; some capitals of columns from the cathedral of Reims; the curious galleries of the choir from the cathedral of Laon, and several remarkable sculptures from the cathedral of Amiens.

At the Trocadéro all these can be seen and studied: the elegant traceries of the windows, the wonderful designs which ornament the capitals, the transition from the round to the pointed arch, and the development from the rigid and traditional to the free and natural styles of decorative art.

It is rare that any traces of a foreign manner are found in France, still in the southern towns buildings remain which show signs of having been the work of foreign workmen—probably Greek artists from Arles which was at that time a rich city holding much intercourse with the towns of Italy. Some of these workmen journeyed as far north as Paris, and probably the bas-reliefs which ornament the west wall of Notre Dame, between the great central and the north doors, are by them. Again in the façade of St. Trophime at Arles, finished in 1152, there are reminiscences of the antique; and no doubt the doorway of the church of Moissac is also of Greek workmanship. Here again is the usual subject slightly modified — Jesus Christ is seated in glory, holding the book of the seven seals in one hand and giving the benediction with the other, surrounded by the four evangelists with their emblems. Below sit the four-and-twenty elders of the apocalypse listening in wrapt attention to the result of the judgment. The grandeur of the heads, their divine expression, and the elegance and richness of the drapery, prove this composition to have been the work of skilled artists.

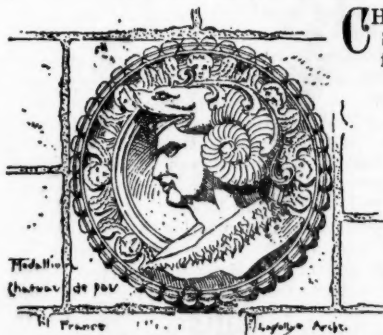
In early times it was the custom to honor the dead by magnificent sarcophagi ornamented with statues and bas-reliefs. Those of founders of churches, or abbots, were composed of figures of Religions weeping over their benefactors and the members of their families. Later on a kind of marble table or slab raised two or three feet above the ground was substituted for the sarcophagus. This was generally sustained by little pillars, and upon it was laid the effigy of the departed as he appeared upon earth, dressed as a warrior, a priest, a bishop, or abbot, as the case might be, while underneath was another effigy reposing in the sleep of death. In this style are tombs of Estienne d'Aubaguines; the children of Charles VIII by Jean Juste, at Tours; François II, at Nantes (the figures at the corners represent the four cardinal virtues, Fortitude, Temperance, Vigilance, and Justice; and it is a curious fact that at the present time at a first-class funeral in Paris these same allegorical figures in plaster are placed at the four corners of the catafalque); Louis XII and Anne de Bretagne, his wife, at St. Denis; Henri II and Catherine de Medici, by Germain Pilon; and Philippe and Ulric de Werth,

landgraves of Alsace, at the church of St. Guillaume, Strasburg. The feet of this last one rest upon dogs, a very common device in those times, either emblematical of fidelity, or of the success of the defunct in stamping upon the evil one. Here, too, is the celebrated "Puits" or "Well of Moses," which was formerly in the old Chartreuse of Dijon, now rebuilt as a hospital for the insane. It was executed by Claus Slater (the sculptor of the tombs Philippe le Hardi, and Jean-sans-peur, also formerly in the Chartreuse), supposed to have been a Dutchman. The dates of the tombs being 1342-1419 it is probable that the well was executed about the same period. It consists of figures of Moses, David, Jeremiah, Zachariah, Daniel, Isaiah, placed under rich canopies and upon pedestals. It is hexagonal in form, and remarkably fine, particularly the expression of the faces: indeed Slater was celebrated for his truth to nature, as is exemplified by an anecdote related of François I, who on visiting the Chartreuse and seeing the tomb of Jean-sans-peur, and the gash in his skull, remarked, "Through that the English entered France." The figures from the Fontaine des Innocents, by Jean Goujon, should not be passed over although they are of much later date.

Rarely are the names of the artists recorded upon old work, probably from a modest feeling that being purely religious in object, it was of no consequence knowing by whom the work was done—a species of modesty that is very conspicuous by its absence in these latter days; but nevertheless it is to these obscure workers that every country owes its early artistic education; it is to these naïve instructors that we must be grateful for the cultivation of our tastes; it is to them that we owe our love of the beautiful and true in art; and it is their work which has helped to form such men as Michel Colomb, Jean Texier, François Marchand, André Colombeau (of Dijon), Jean Juste (of Tours), Jean Goujon, Germain Pilon, and Bontemps.

PENGUIN.

DR. CHARLES WILLIAM SIEMENS.



CHARLES WILLIAM SIEMENS, D.C.L. of Oxford, LL.D. of Glasgow and Dublin, Ph.D. of Würzburg, is this year President of the British Association, and it will be appropriate at the present time to refer briefly to some of the leading points in his career which has been in many respects a remarkable one.

Dr. Siemens landed in England when nineteen

years of age, with little money in his pocket, without friends, but with plenty of confidence of ultimate success. He came to this country from Germany with an invention, the work of himself and his elder brother, who, as Dr. Werner Siemens, has since become so widely known. This invention related to improvements in electroplating, and was taken up by Messrs. Elkington & Mason, of Birmingham, who thus gave young Siemens his first start in life. He went back to Germany, but returned the following year with a chronometric governor worked out with his brother. This, though less successful from a commercial point of view, brought him into contact with the engineering and scientific world, and determined him to make England his home. The chronometric governor has since been applied by Sir George Airy for regulating the motion of his great transit instrument at the Royal Observatory, where it is still employed. Mr. Siemens was just over twenty-one years of age when Faraday chose for the subject of a Friday-evening lecture the "Anastatic Printing Process of the Brothers Siemens."

During the next ten years he was variously engaged, but mainly in matters connected with mechanical engineering: he improved his chronometric governor, brought out a double-cylinder air-pump, and a simple water-meter, which has been very extensively used in this country and abroad. He then turned his attention to the new study of the dynamical theory of heat and the employment of regenerators for recuperating the heat generally allowed to run to waste. His first application was to a regenerative steam-engine he constructed in the factory of Mr. John Hicks, of Bolton, and although an engine of this character was exhibited later on at the Paris Universal Exhibition of 1857, the use of superheated steam was attended with difficulty, and the application of the regenerative principle to motor engines has not so far been extensively made. The Society of Arts, however, acknowledged the value of the principle by giving Mr. Siemens the gold medal for his regenerative condenser in the year 1850.

In 1853 he presented his first paper to the Institution of Civil Engineers, "On the Conversion of Heat into Mechanical Effect," which gained him the Telford premium and medal. During the decade thus commenced, that is between his thirtieth and fortieth years, he described his governor, steam-engine and water-meter in papers read before the Institution of Mechanical Engineers, and read two papers on electrical subjects, one before the Institution of Civil Engineers, on the tests employed during the construction of the Malta and Alexandria Cable, and on insulating and protecting sub-marine cables; the other on the electrical resistance and elec-

trification of insulating materials under pressures up to 300 atmospheres, which was published in the British Association Report for 1863. Five years previously he established with his brothers, Dr. Werner and Mr. Carl Siemens, the firm of Siemens Brothers, which has since become famous as well for the electrical instruments and machines they manufacture as for the sub-marine and land lines due to their enterprise, four transatlantic cables, the Indo-European line, as also the North China cable, the Platino-Brazileira cable, and others.

It was during these ten years that he was engaged with his younger brother, Mr. Frederick Siemens, upon that invention with which his name has since been mainly connected, the regenerative gas-furnace. All heat furnaces formerly discharged, and a great many unfortunately still discharge, the products of combustion at a very high temperature and in an incompletely consumed state. The first of these evils was cured by the regenerative furnace using solid fuel in the combustion-chamber. A quantity of brickwork was so arranged that the hot products of combustion could freely pass through it in one direction, thus heating it on their way to the chimney, while cold atmospheric air passed through it in the opposite direction, absorbing heat from the heated brickwork, and being raised in temperature before being supplied to the fuel on the hearth. The second cause of waste was checked by turning solid into gaseous fuel, and then by means of double regenerators heating the gas and air respectively before they combined in the combustion-chamber of the furnace, to which they were supplied by valves in the necessary quantities to allow of complete combustion.

With the regenerative gas-furnace Mr. Siemens, in 1862, attacked practically the problem which in 1722 Reaumur had solved experimentally, by making steel through the fusion of malleable iron with cast-iron in a clay crucible. He also commenced his work with crucibles, but soon discovered that with the enormous quantity of high-temperature heat at his disposal in the regenerative furnace it was a waste of energy to melt steel in such small quantities. He endeavored to interest iron-masters in his invention, but had eventually to experimentalize on his own account at the Sample Steel Works at Birmingham, where, after seven years had passed and much money had been expended, he introduced what is known as the open-hearth or Siemens process, in which pig-iron is melted on the furnace bed and iron ore then added in the proportion of from 20 cwt. to 24 cwt. to 5 tons of pig-iron, and with M. Emile Martin, the Siemens-Martin process, in which scrap-iron takes the place of ore. In 1867, at the Universal Exhibition of Paris, he was awarded a Grand Prix for his regenerative gas-furnace and steel process. After his success at Birmingham the Landore Siemens Steel Company was started and now produces 1,000 tons a week of that tough soft steel of specially high quality which Dr. Siemens has been largely instrumental in introducing for the manufacture of ships and boiler-plates, tyres, and for like purposes, where a material of high endurance is required. Upwards of 340,000 tons of this material were made last year in 150 furnaces at different works in the United Kingdom, such as those of the Steel Company of Scotland, Vickers & Co. of Sheffield, the Parkhead Forge, and others.

During this decade was also introduced the rotary furnace for producing iron direct from the ore instead of by puddling pig-iron. A very good quality of iron has been made by this method, which is now mainly used as a feeder to the open-hearth process.

During the last ten years Dr. Siemens and his firm have devoted much attention to the practical application of electricity. In 1867 he brought before the Royal Society, on the 14th of February, a paper containing the results of researches by himself, based on a conception by his brother, Dr. Werner, on the conversion of dynamical into electrical force without the aid of permanent magnetism. By a very curious coincidence Professor Wheatstone's paper on "The Augmentation of the Power of a Magnet by the Reaction thereon of Currents induced by the Magnet itself," was also read at the Royal Society on the same evening.

Another invention of Dr. Siemens which deserves special notice is his electric resistance thermometer and pyrometer. As early as 1860, when engaged in superintending the electrical examination of the Malta and Alexandria telegraph cable, his attention was directed to the increased resistance of metallic conductors due to a rise of temperature, and in 1861 a thermometer, the action of which was based on this fact, was described by him before the Physical Section of the British Association at Manchester. Later on Dr. Siemens further investigated the subject, the result being the production of his electric resistance thermometer and pyrometer, which has been the means of affording material aid to certain branches of scientific research. This instrument formed the subject of the Bakerian Lecture for the year 1871, and upon it has been founded Professor Langley's recently invented "bolometer."

Five years ago, when Dr. Siemens brought before the Iron and Steel Institute his proposal of great power centres for driving either by means of natural sources of energy or large and powerful engines, dynamo machines for supplying light and power over areas of sixteen square miles, only a few accepted the possibility of such a consummation, and yet now the Government has brought in a bill to effect a similar result.

Dr. Siemens has been President of the Institution of Mechanical Engineers, twice of the Society of Telegraph Engineers and Electricians which was founded under his auspices, and of the Iron and Steel Institute. Oxford in 1870 made him a D.C.L., while Dub-

lin only a few months ago, and Glasgow in 1880, conferred on him the degree of LL.D., and more recently still, the University of Würzburg bestowed on him its honorary Ph.D. Dr. Siemens is member and honorary member of many European and American societies, while he has received recognition of his services to pure and applied science from the Emperor of Brazil, the Shah of Persia, and from France, both under the Empire and Republic. — *Engineering*.

THE ILLUSTRATIONS.

RAMBLING SKETCHES BY MR. T. RAFFLES DAVISON. — LLANBADERN CHURCH, WALES.

[From the *British Architect*.]

ONE of the most solemn and severe-looking old gray churches to be seen is the old Cathedral of Llanbadern Fawr. This fine old Welsh church, with its great central tower, is a picturesque object from many points of view, as it dominates the little village of Llanbadern, nestling on the hillside of the Ystwith valley. The church was greatly in need of restoration, and this has been, in part, taken in hand, under the direction of Mr. J. P. Seddon, of Westminster, in an admirable manner, no points of interest in the old work having been lost. The treatment of the tower crossing inside is unusually fine and dignified. Mr. Seddon has put a boarded barrel roof over the nave, with bosses on the ribs, similar to the old dilapidated roof which is shown in my sketch as now existing in the chancel. The singular feature of the exterior is the tower, forty feet square, with the regularly disposed square holes over all its sides. If the restoration funds permit the covering of this by a lofty plain spire, with louvre openings for the bell sound, as Mr. Seddon suggests, the effect of the whole will be splendid. The pulpit is the gift of the present Bishop of St. David's, as a memorial of his mother. The lectern I have not seen one like before. It is a combination of stone and faience. Leaving out of question any difference of cost between carving of stone and modelling of clay, the advantage this faience possesses is the excellent coloring in which it may be produced. The light blue-gray of this eagle, which is emphasized by the running of the glaze, forming dark color in all the lines and hollows of the modelling, is very charming, and makes a delightful contrast between the light stone below and the wood reading board above. The ball on which the eagle stands, and the plate by which it is secured to the book board, are a rich dark blue. I have sketched a bit of the only remaining carved work in the church, the southwest door, which shows the very early character of it. The door has three orders of shafts and roll mouldings. There is no old church in the country with more of simple impressive dignity about it, and the additions of the spire and of a rich and effective chancel end are much to be desired, and should be gladly subscribed for by those in the locality who are pleased to worship in so fine a church.

ROYAL ACADEMY GOLD MEDAL DESIGN: A CASINO. MR. J. HOWARD INCE, ARCHITECT.

[From the *Architect*.]

We publish this week the perspective view of the design to which the gold medal of the Royal Academy and a travelling studentship of £200 were awarded. The subject is a casino or club for an inland watering-place, the accommodation required being a large assembly or concert hall, with open arcades or balconies, a small theatre, café, dining, reading, smoking, billiard and card rooms, with the necessary offices; the building site being limited to 150' x 200', with a garden or entrance-court in front 100' deep, showing a fountain. The conditions required all the work to be done in the Academy within six weeks, between the hours of 9 and 5.

Mr. Ince places his rooms as much as possible on the ground floor, prominence being given to the great hall, which opens onto a terrace, and from the galleries onto a wide balcony, whilst extra seats are afforded by a second end gallery over the card-rooms on the first floor, for which a special staircase is provided, besides the turret stair. But the most characteristic feature is the open-air café, round which the buildings are grouped. It should, however, be borne in mind, that this is not only a design for a casino, but also for an academic prize, demanding a certain severity and dignity of effect — two conditions not strictly compatible.

OLD CHIMNEY-PIECE.

[From the *Building World*.]

This fine old chimney-piece from Wraxhall, Wilts, is designed in the Elizabethan period, and is profusely ornamented by carving, which, although not so much appreciated now, from its apparent "clumsiness," for all that shows a large amount of good taste, ingenuity, and faithful workmanship. The female figures in the niches on the upper portion represent Arithmetic (with evidently an aching head), and Geometry, with a pair of compasses and a globe, a level and square being at her feet; Justice has the usual scales, but we observe no bandage to her eyes; and Prudence, a thrifty housewife with sleeves turned up, ready for her household duties. Wraxhall House, we learn, once was the property of a family of the name of Young. They were succeeded by the Long family, the first of that line being a man named "Long Thomas," who received the property from the Baron Lord Hungerford, and because he was called Long Thomas took the name for his own, changing it into Thomas Long, a descendant of whom was Sir Robert Long.

THE COMPTOIR D'ESCOMPTE, PARIS, FRANCE. M. COURROYER, ARCHITECT.

[From *La Semaine des Constructeurs*.]

The façade of this building lately finished in the Rue de Rougemont is of carefully selected white stone. The roof and bell-turret are covered with lead. The seated figure under the central arch, representing Prudence, and the two figures on either side of the pediment, representing respectively Industry and Commerce, are the work of M. Aimé Millet. The five medallions in the frieze represent in mosaic, on a gold background, Oceanica, America, Europe, Asia and Africa. The three doorways open on a vestibule which precedes an immense hall open to the public. The greatest care has been taken to perfect the systems of heating, ventilating, electric-lighting and pneumatic and acoustic communication that have been introduced into the building.

FACADE OF THE NEW LAW COURTS ON THE STRAND, LONDON.

MR. G. E. STREET, ARCHITECT.

[From the *Building News*.]

DESIGN FOR A JACOBEBAN SIDEBORD BY MR. BRUCE J. TALBERT.

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

COMPETITIVE DESIGN FOR THE BOARD OF TRADE BUILDING, BUFFALO, N. Y. MR. E. P. TREADWELL, ARCHITECT, ALBANY, N. Y.

AN AMERICAN WRITER ON ENGLISH ARCHITECTURE.¹



[From the *British Architect*.]

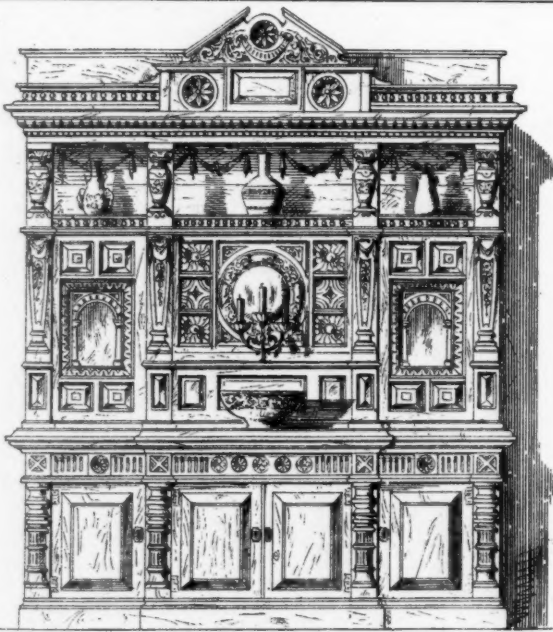
THE well-expressed opinions of the cultivated traveller on any country that he may visit invariably afford instruction; a special interest, however, is attached to the views of the American visitor to our shores. There is that sufficient community of language, literature, history, and traditions between us and our cousins, the absence of which leads on the part of all other "foreigners" to such amusing expressions of opinion regarding our country as, from time to time, are to be met with, even from highly-educated sources. It is additionally interesting when we have brought before us the views of a cultivated literary student, such as Mr. Richard Grant White, who, in his lately-published work, "England Without and Within," has given us the result of his experience during several months' residence among us. A glance suffices to show that his work is not the crude ill-digested expression of the hasty traveller or sight-seer, but of an observer who, long before reaching our shores, has prepared himself by a lengthy course of reading and thought.

To the cultivated American England is always "the old country;" what, we have Mr. Morley's recent assurance, Longfellow once said

¹ From the *Builder*.

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OUR FOREIGN EXCHANGES - VII.

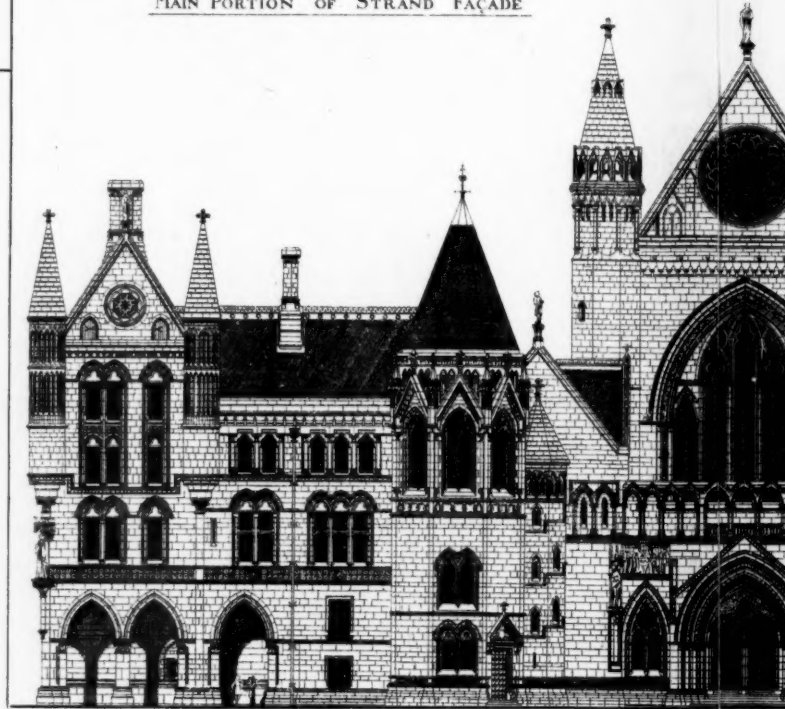


Cabinet Maker.

Design for Jacobean Sideboard. By B. J. Talbot.

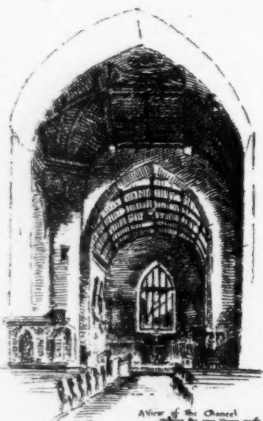
ROYAL COURTS OF JUSTICE

MAIN PORTION OF STRAND FAÇADE

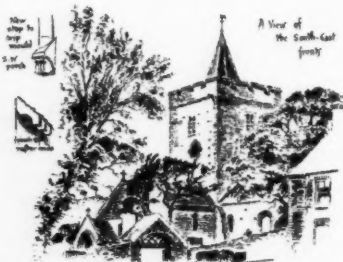


WITNESS STAIRCASE

PRINCIPAL ENTRANCE



Altar of the Church looking down the nave



A View of the South-East front



Old capital in the South-West door

Rambling Sketches by Alfred Dawson

No. 62 Llanbedon Church Restored by J. P. Seddon F.R.C.B.



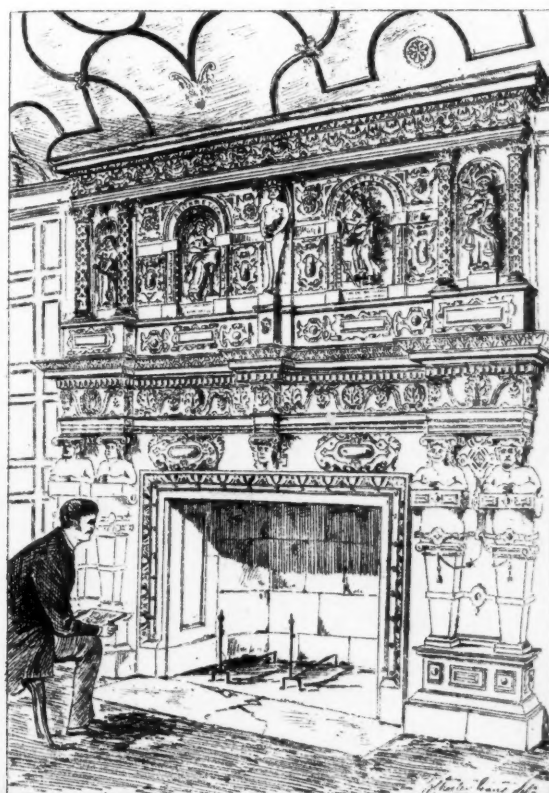
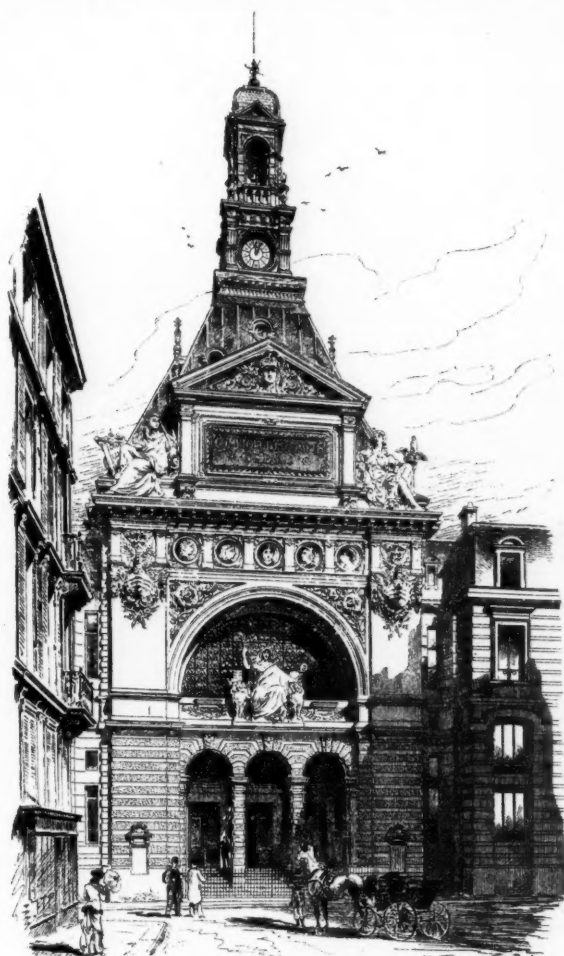
The Pulpit

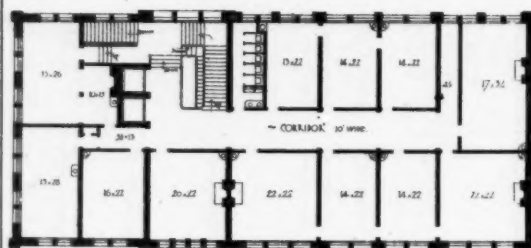


The Lectern

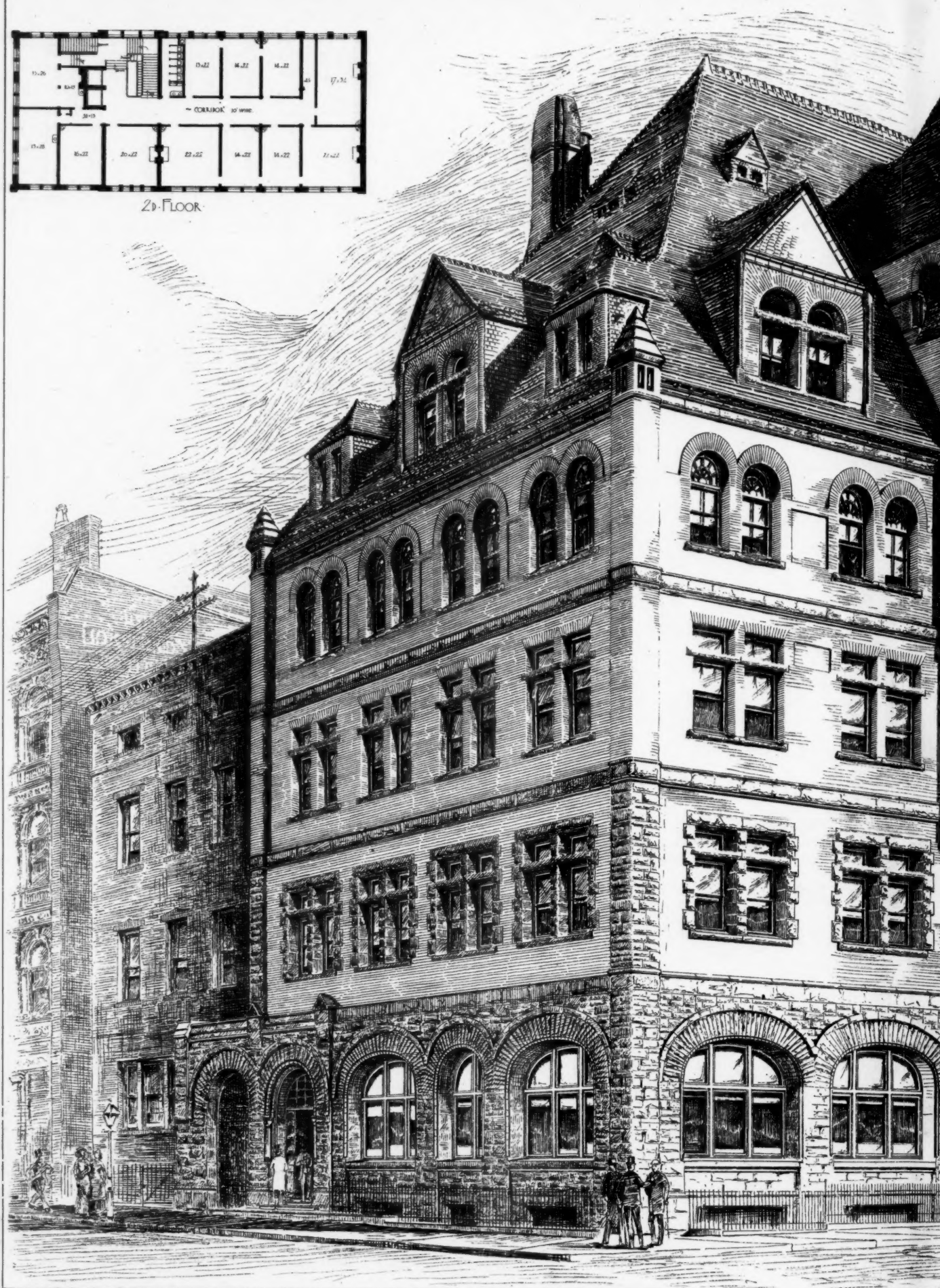


DESIGN FOR A CASINO OR CLUB FOR BY J. EDWARD INCE





2D. FLOOR



E. P. TREADWELL, Architect.
ALBANY & BOSTON

Competitive design for Buffalo



Buffalo Board of Trade

Helotype Printing Co. 211 Tremont St Boston.

of his countrymen, that they were only Englishmen under a different sky, is largely felt to be true throughout all the eastern portion of the States, by all true Americans, of whom Mr. White is so characteristic a specimen. As a self-styled "unmitigated Yankee, not one of whose forefathers had been in England for 240 and odd years," Mr. White, like his countryman, Hawthorne, shows more than once his contempt of the far too lightly styled "Americans," who may, it is true, hail from the States.

Mr. R. G. White's work has so far received from the reading public in this country a most flattering reception, and very interesting, not only to its American but to its English readers will much of the work be found. In most cases the views of the author are clearly the result of well-weighed consideration; but there are points over which our critic might have passed with less confidence of tone. It is not our intention, nor indeed would it enter within our province, to speak generally of Mr. White's work. It is to the casual reference made by the author to the artistic beauties he had the opportunity of seeing during his visit that we wish to draw attention.

Mr. White seems to us to show want of the critical faculty, to say nothing of historical reverence, when he speaks as he does of St. Paul's as "outside and inside the ugliest building he ever saw." "Its forms are without beauty, its lines without meaning, its round windows are ridiculous. Its outside is not only ugly in form, a huge piece of frivolity, but its discoloration gives it a most unpleasant look." The reverence which the author so constantly expresses failed him singularly here at a point where it was most wanted. Our author's criticisms are scarcely less severe when he declares the City public buildings to possess the beauty of fitness, "for they look just what they are, — the creations, the abode, and the stronghold of British Philistinism, — rich, substantial, tasteless, and oppressively respectable;" again, he will find few to agree with him when he complains that even distance cannot render the Houses of Parliament "imposing," a fault which, whatever may be the faults of Barry's grandiose design, could not possibly be found by any one who has ever enjoyed the privilege of observing constantly from Westminster Bridge the long pile under the varying aspects of sunrise and sunset; while we can imagine Sir Edmund Beckett's feelings when Mr. White expresses his delight at "the grand, sweet voice" of Big Ben. But the *finale* of this paragraph is perhaps the most curious. "The parish churches are mostly by Wren or in his style, and are ugly with all the ugliness possible to a perversion of the forms of Classic architecture."

Though such opinions are somewhat calculated to weaken one's confidence in our author's judgment, yet it must be agreed that he is right in not finding that the newer parts of London near South Kensington are externally very interesting: he finds, however, that the houses are very handsome. "The pretentious talk I have heard about Fifth Avenue houses leads me to say that there are hundreds of houses in the best parts of London, around Hyde Park, on Carlton Terrace, and in other like places, which are far finer, much more noble, as Pepys would have said, than any that are to be found in New York, in Boston, or in Philadelphia." And our author here compares the modern houses of London and New York, the difference, he asserts, being "that the former, while less showy than the latter, are more spacious, and have more of the dignity which accompanies large and well-proportioned size. . . . The notion that rows of houses all alike are not found in England is altogether wrong: in the new parts of London such rows, and of very handsome houses, are common, while in the new parts of smaller towns the houses built for people of moderate means stand in rows of from a dozen to two dozen, as like each other as one brick is like another." In our shops Mr. White complains of a remarkable "absence of show and pretension," and he utters a very justified complaint respecting the irregular manner in which the streets are named and numbered. Of Fleet Street our author has naturally much to say, of the Old Cock hostelry and the quiet Temple Gardens; he expresses his surprise at the ruthless way in which we demolished Temple Bar, though the surprise is qualified by the remark that "the removal of the obstruction, architecturally not very admirable, shows how, at the last moment, the English mind can rise to the emergency of a great reform."

We can thoroughly understand Mr. White's "new and delightful sensation" of surprise at finding a town like Windsor so little increased in size after its centuries of existence, a town "neither great nor growing," and plainly without enterprise. "It gave rest to a certain stunned and weary feeling which comes upon one in the streets of New York, and in the streets of other places which are daily, with more or less success, doing all they can to be like New York, that dashing, dirty demirep of cities." Old and enthusiastic student of Shakespeare as Mr. White was, he was wise enough not to allow himself to be carried away at Windsor, where so few traces of the haunts spoken of by the poet now remain; indeed, as our author admits, he "found little of interest; the town is not new, but it is modern, and its Elizabethan features have all been improved away." The incident of the ruins of a burnt house meeting our critic's eye affords him the occasion to give us his opinion of the mode in which many of our English houses are built. "The house had not been wholly destroyed, and the skeleton still held together. It seemed to have been built some forty or fifty years ago. I was surprised at the flimsiness of the construction. The bricks were poor, and the mortar was bad. A house so built may be found anywhere, and I should not mention this, but as the occasion of remark-

ing that I found the same inferior builder's work wherever I went in England. According to my observation, modern English houses, unless they are built with special care and unusual expense, are very slightly put together with bad materials and poor workmanship. It is the custom to put up the shells of houses, usually three or four together, and to leave them to be finished according to the wishes of an intending tenant or purchaser. I examined many of these without finding one even tolerably well built. . . . The mortar, although it had been set for years, would crumble under the touch of my stick, or even my thumb-nail. And walls of the modern-built villa houses that I visited were rarely more substantial, while the joiners' work was both slight and coarse. I also remarked that where recent additions had been made to the height of garden walls, the mortar in the new parts, although in general it was plainly ten or twenty, or even thirty years old, was more like mud than mortar. Indeed, I did not see in England in a new private building of moderate pretensions, any mortar worthy of the name. This attracted my attention, I need hardly say, because of the notion generally prevailing and sedulously encouraged by British writers, that all English work is distinguished from other work of its kind by excellence of material and thoroughness of workmanship; that although it might not have elegance, it was sure to be substantial. I did not find it so. In this respect in many ways I was disappointed. That such was once the character of the work of English artisans and manufacturers is not to be disputed, but during the last fifty years this glory of England seems to have departed." Severe as is this view, must it not be admitted that in too many cases it is only too true?

Windsor Castle, Mr. White, of course, saw pretty thoroughly, but probably the most interesting portion of the chapter, "A Day at Windsor," is devoted to the description of the antique and far too little known Church of St. Andrew at Clewer, one of the oldest in the kingdom, and concerning which we can thoroughly believe our author finding many grown-up Eton boys had never seen.

In his chapter on "Rural England," in comparing our cottages, picturesque though the writer admits them to be, he is of opinion that the corresponding unsightly wooden houses of the United States, "in real comfort and in healthiness, are superior; for they are dry and warm. Their shingle roofs keep out the rain which comes through thatch, or soaks and rots it, and their clap-board sides do not become reservoirs of cold dampness. Rheumatism is not so common among those who live in them as it is among the English rustic folk," while a very proper mention is made of the carelessness in our villages respecting the objects that are "in unnecessary nearness to the house." "There are no indications that the inhabitants are anything more than tillers of the ground, and that when work is done they put it and its belongings out of sight and out of mind, and change their occupation with their clothes." Indeed, we can understand any one accustomed to the comfort and independence to be met with among the farmers of New England and the Middle States being somewhat surprised at the condition of the corresponding class in the old country; but, as our friend admits, whether they would be such good farmers "I very much doubt; whether they would have been more respectable men, or even happier, I shall not pretend to decide." The chapter on "Rural England" is of great interest, and the result of much observation. To many an English reader it will afford valuable matter for reflection. The same may undoubtedly be said of the succeeding chapters on "English Men and English Women," on "English Manners and Habits," on "Nobility and Gentry," and several others.

Hampton Court gives Mr. White another opportunity for an attack on poor Wren. "The first sight of the palace itself," the writer remarks, "is very disappointing, for the principal front which it presents shows, at a glance, the hand of the architect of St. Pauls." The seventeenth century, in spite of its peculiar interest, literary and historic, and its essential connection with the New England of which Mr. White is so characteristic a citizen, comes off hardly at his hands. Speaking of the famous Lely beauties, our friend remarks that they are "poor, flimsy, meretricious things." Had his remark been applied to the originals we could understand it from so stanch a descendant of the Puritans of the *Mayflower* days, but he goes farther when of these portraits he says that, "Even the flesh tints, which are the best part of them, are weak and washy, and the drawing is very bad. The eyes are, I think, the worst that I ever saw in paintings of any pretension." We are sorry to see our critic going beyond his province: his views, social, political, and historical, it is instructive to hear, but his artistic criticism not possessing the same solid foundation of experience we must object to. The remark made during a walk from Twickenham to Hampton Court, on the high-sounding names given to some of the "scrubby little roadside cottages with a neglected patch of earth or grass before them," which the writer met on the way, is more to the point.

The chapter entitled "A Canterbury Pilgrimage" contains some interesting and carefully gathered information. "There is no place in England," truly remarks Mr. White, "excepting London and Westminster, which is so enriched by memories and by memorials of the past; and yet I found intelligent, well-educated men in London and elsewhere, not three hours away, who had never seen Canterbury and its great cathedral." Mr. White of course put up at the "Rose" inn, on the difference of which from the hotels of his own country he has much to say. Our author is charmed with our inns, where "you do not feel as if the house were a mere continuation of

the street, except the paving-stones and the carts and horses." With Canterbury our author is enchanted, as a town which like so many others in England has "manifestly grown and not been made to order, not put in sections by contract . . . one house built in a certain place, and in a certain way, because its builder chose to build it there and in that way"; and this charm of our old towns which appeals to the American visitor, let our builders see that they respect and endeavor to continue. Mr. White, though he admits he did not go to Canterbury to "mouse among antiquities nor to study architecture," after seeing the cathedral, with which, of course, he was much impressed, did not neglect to visit St. Martin's Church, with its thirteen centuries of hoary antiquity, that lie buried beneath the ivy that clammers round the old tower and over the Roman bricks of the walls.

Speaking of Cambridge, our author remarks that the architectural interest of Oxford "is so great that Cambridge is too much neglected in this respect. Its college buildings are so beautiful that only to see them would be worth a journey from any part of England"—a statement that all who know the old town would fully bear out. Oxford and Cambridge, with many of their interesting traditional customs, are well described by Mr. White, who had the advantage of excellent introductions to the authorities. Of Oxford he does not hesitate to say that "it is the most beautiful place" he saw in England; indeed, he is inclined to think "the most beautiful town in the world," and Mr. White warmly urges on his countrymen who may visit England "with a desire to see its characteristic beauties to give at least two or three days to Oxford."

It is a serious and lengthy chapter, one dealing with a subject which, as Mr. White himself says, is of equal importance to his countrymen as to us,—the chapter on the "National Vice" of drunkenness,—a vice of which, however, "it is to be said," he remarks, "that there are reasons for it, which do not exist in other countries. England lacks good" [this he explains afterwards as meaning "soft"] "water, and produces no wine." The statement that "many people cannot drink the water of England unqualified, without being made ill," can be thoroughly borne out by fact. Mr. White is not severe on the national vice: he only bewails its prevalence, and particularly its saddest form, among the women; he is only one more of those who openly aver that "such steady besotted drunkenness seems to be at the bottom of much of the distress and most of the crime in England." It would seem, however, our author concludes, that we are gradually freeing ourselves of the vice. Abstemiousness in England is not so easy or desirable as it is in America, "and hardest, although most desirable of all things everywhere, is not abstemiousness, but temperance."

Mr. White, of course, does not neglect a description of the obligatory pilgrimage of every good American to Warwick and Stratford-on-Avon; for even those Americans who are only hurrying through our country to Paris never fail to visit Shakespeare's birthplace, "the proportion of these being very much larger," remarks Mr. White, "than that of the cultivated Britons who render their personal homage to him whose works are our richest common inheritance." But with Stratford Mr. White is sadly disappointed. "The truth is," he admits, "the Stratford that I knew (and about which I had read so much, and the topography of which I had studied until I could have gone straight to every place I wished to see without a guide) was Shakespeare's Stratford, and that has passed away. The truth is, that in the stead of old Stratford, there is now a successful place of business," and, he concludes, after describing his other disappointments, by advising no one to go to Stratford "who would preserve any elevated idea connected with Shakespeare's personality"; but we consider Mr. White is going too far when he roundly declares of the poet's monument in the church that "it is ugly; the staring painted figure-head-like bust hideous."

On his return to London our author admits to a positive feeling of "getting home again," as, in spite of the little beauty of our metropolis, its dulness and dinginess and commonplace character, yet the whole of it outside of the city proper has a home-like look." Some of our streets remind Mr. White of the thoroughfares in his own country, a fact which any one who knows America can fully bear out. "There is," in fact, as he very sensibly points out, "no indication of a difference of character between the people who built London and those who built New York and Philadelphia. The unlikeness is produced simply by the fact that the newer and larger parts of the latter places were laid out, projected, and that the whole of the former slowly grew;" however, as an impression, Mr. White admits to finding "striking" the general unlikeness of London to towns in the United States, an unlikeness "very much greater at the present day than it reasonably should be." Certainly, the older parts of New York singularly resemble the older parts of London. On our London statues Mr. White does not exercise his usual artistic severity of criticism: he even finds their number "great." "It could hardly be otherwise in the capital of a country with such a history as England's." Compared with New York and the cities in "the States," this is, of course, true; but it hardly suffices when we think of the Continent.

Without any affectation of thoroughness Mr. White has placed before his countrymen, and, indeed, before English readers, who, perhaps, will most profit by a perusal of his book, a curious and instructive picture, which fully answers to its title, of "England Without and Within." — *The Builder*.

TILES.



Old Ambrosius Church, Canterbury.

100 square feet of surface. Crown, ridge, hip, and valley tiles are semi-cylindrical, or segments of cylinders, used for the purposes indicated. A gutter tile has been introduced in England, forming the lower course, being nailed to the lower sheathing board or lath.

Siding tiles are used as a substitute for weather-boarding. Holes are made in them when moulding, and they are secured to the lath by flat-headed nails. The gauge, or exposed face, is sometimes indented to represent courses of brick. Fine mortar is introduced between them when they rest upon each other. Siding tiles are sometimes called weather tiles and mathematical tiles: these names are derived from their exposure or markings. They are variously formed, having curved or crenated edges, and various ornaments, either raised or encaustic.

The glazed tiles are inferior to slate, as they imbibe about one-seventh of their weight of water, and tend to rot the lath on which they are laid. Good roofing slate only imbibes one two-hundredth part of its weight, and is nearly water-proof.

Encaustic tiles are ornamental tiles, having several colors. A mould is prepared which has a raised device on its face, so as to leave an impression on the face of the tile cast therein. This intaglio recess is then filled by a trowel with clay compounds, in the liquid or slip stage, and which retain or acquire the required colors in baking. The tile is then scraped, smoothed, baked, and glazed. This tile is common in ancient and modern structures. The glazing came from the Arabs, who derived it from India, and primarily from China.

Drain tiles are either moulded flat and bent around a former to the proper shape, or are made at once of a curved form by pressing the clay through a dod or mould of the required form. The latter plan is now generally used.

Various machines are used in the manufacture of tiles. One of these has two iron cylinders, around which webs of cloth revolve, whereby the clay is pressed into a slab of proper thickness without adhering to the cylinders. It is then carried between two vertical rollers, which impart a semi-cylindrical or other required shape, after which the tiles are polished and finished by passing through three iron moulds of horse-shoe form, being at the same time moistened by the dripping of water from a tank above, and finally conducted off upon an endless web.

In more recent machines the tiles are generally formed at one operation, by pressing. A charge of clay sufficient to form a number of tiles is placed in a cylinder and subjected to the action of a piston, which forces it out as a continuous tube, after which it is cut in lengths by a wire. The most modern machines generally employ a screw, which serves at the same time to mix the clay and force it through the mould; the process of feeding and moulding is thus rendered continuous, no time being lost in charging the cylinder.

One of the most improved of modern machines consists of a vertical pug-mill, containing rotary curved knives and a screw follower for forcing the clay through the dies. The pipe, on issuing from the dies, is carried forward by a series of rollers having hollowed surfaces, and is cut into lengths by a rocking frame provided with cross wires. In another machine the clay is forced through the dies by two plungers working in boxes at the base of the pug-mill, and reciprocated by cranks set at right angles to each other on the same shaft. Two sets of dies are employed, one plunger being retracted to allow its box to receive a supply of clay, while the other is engaged in forcing the clay through its die.

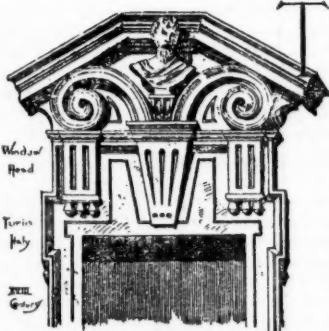
Tiles are usually placed in the kilns in bunches of twelve, and laid alternately cross and length wise. The spacing of the tiles allows the circulation of the heat between them, and the circular form of oven is found well adapted to secure uniformity of heat.

PLAIN tiles are usually made $\frac{5}{8}$ " in thickness, $10\frac{1}{2}$ " long, and $6\frac{1}{2}$ " wide. They weigh from 2 to $2\frac{1}{2}$ pounds each, and expose about one-half to the weather. 740 tiles cover 100 superficial feet. They are hung upon the lath by two oak pins inserted into holes made by the moulder. Plain tiles are now made with grooves and fillets on the edges, so that they are laid without overlapping very far, the grooves leading the water. This is economical of tiles, and saves half of the weight, but is subject to leak in drifting rains, and to injury by hard frosts.

Pan tiles, first used in Flanders, have a wavy surface, lapping under and being overlapped by the adjacent tiles of the same rank. They are made $10\frac{1}{2}$ " x $14\frac{1}{2}$ "; expose $10\frac{1}{2}$ " to the weather; weigh from 5 to $5\frac{1}{2}$ pounds each; 170 cover

The kiln is protected on the windward side to prevent uneven urging of the fires. The oven being set the doorway is bricked up and daubed, the fires kindled and kept burning, moderately at first, and then more freely. The usual time for firing is thirty-eight hours. Three days are then allowed for cooling, and they are afterward taken out of the kiln. Those tiles that are to be made of a grayish color are thus treated: it having been ascertained that the tiles are burnt enough, and while still red-hot, a quantity of small fagots of green alder with the leaves on is introduced into each flue. The flue-holes are then well secured and the holes in the roof each stopped with a paving tile, and the whole surface is covered with four or five inches of sand, on which a quantity of water is thrown to prevent the smoke from escaping anywhere. It is this smoke which gives the gray color to the tiles, both internally and externally. The kiln is then left closed for a week, when the sand is taken off the top, the door and roof holes are opened, as also the flue holes, and the charcoal produced by the fagots taken out. Forty-eight hours after the kiln is cool enough to allow the tiles being taken out and the kiln charged again. Whenever any of the tiles are to be glazed they are varnished after they are baked; the glaze being put on, the tiles are put in a potter's oven till the composition begins to run. The glaze is generally made from what are called lead ashes, being melted and stirred with a ladle till it is reduced to ashes or dross, which is then sifted and the refuse ground on a stone and resifted. This is mixed with pounded calcined flints. A glaze of manganese is also sometimes employed, which gives a smoke-brown color. Iron filings produce black; copper slag, green, smalt blue. The tile being wetted, the composition is laid on with a sieve and the tile subjected to the heat necessary to vitrify the application. — *Pottery and Glassware Reporter.*

FIRE-PROOF PAINTS.



THE catastrophe at Vienna gave a great impetus to the inquiry for fire-proof paints. It contributed somewhat to our knowledge of the materials that may be used for coating objects so as to render them almost incombustible. To make that acquaintance more general, it will not be out of place to enumerate the various means that have from time to time been recommended for rendering objects fire-proof. Such means have been known for a long time: unfortunately their use has hitherto been more or less neglected, and it is only now that their usefulness is receiving due recognition. Thus, soluble glass has been known for a long time as a safe covering, but the instances in which it has been applied are very rare indeed, although its action is remarkable. In one case an experimenter demonstrated the protective qualities of soluble glass by leaving a wooden stirrer saturated with it in the intense heat of a coke-oven without its taking fire. It was charred only after it had remained there for some time. Of course wood covered with such paint and its pores well penetrated by it will ultimately burn; but it is ignited only with the greatest difficulty and the fire spreads so slowly as to render a large conflagration impossible. It is very advisable to mix soluble glass with whitening, which mixture turns after a time into an insoluble combination. In order to cause the paint to penetrate the wood, it is best to warm it well before application. Soluble glass is not to be recommended for dress materials or woven stuffs generally: it makes them too stiff and also spoils the color. Its use would be best limited to wood, stiff linen, scenery in theatres, etc.

The following application is also recommended for wood: One part of perfectly sound English Roman cement, two parts of washed scouring sand, one part of fresh cheese (curds), and three-quarter part of buttermilk are well mixed and the wood coated twice with the mixture. While applying it the mixture must be well stirred to prevent the sand settling at the bottom of the vessel. The first coat must be allowed to dry—which would not take long in summer—before the second is put on. Surfaces to be thus coated had better be left rough and unplanned, which gives them the appearance of stone. In order to insure durability wood-work in a horizontal position receives three coatings of varnish mixed with green earth; for slanting surfaces two coats are sufficient; for vertical surfaces one coat suffices. For smooth surfaces two parts of the above cement, one part of fresh cheese, and a quarter-part of buttermilk are taken; but only so much must be prepared of these mixtures as is used up at once.

If 100 parts by weight of alum are dissolved in 800 parts of boiling water, and 25 parts of English sulphuric acid are added to the solution when cold, an excellent fire-proof grounding is obtained, which, if the respective parts are so many kilogrammes, costs about 24 s., and must be applied to the wood twice. To prevent the alum being destroyed by the moisture of the atmosphere the following coating is recommended: ten litres of lime-powder and ten litres of fresh but poor cheese are worked well with about three litres of water with a wooden shovel, ten litres of sand and as much water

being added during mixing as is required to convert the whole into a stiffish mass. It is advisable to strain this mass through a medium sieve before use. Mineral or metallic color may be added.

Potash solved to saturation in water is also a protective covering for wood. After this coating has been applied the wood receives three or four applications of a mass prepared of one part by weight of potash, twenty parts of yellow clay, and one and a half parts of flour, and mixed with water to the consistency of ordinary size-color. A fire-proof coating may also be obtained by mixing twenty-four parts of slaked lime, one part of fat blubber, one part of powdered gypsum, two parts of fine sand, four parts of brick-dust, three parts of hammer-slag, and four parts of chopped calf's hair, with enough bullock's blood to produce a good combination of the several materials. A mixture of lime and alum is likewise said to give a good fire-proof covering to wood, which must be well saturated with it; also a mass consisting of twenty-five parts of borax, twenty-five parts of Epsom salts, and one hundred parts of water; further, a mixture of three parts of slaked lime, two parts of screened wood-ashes, and one part of fine sand, rubbed with linseed oil to a paint readily applied. Another fire-proof covering consists of 66.6 parts of gypsum, 33.3 parts of sulphate of ammonia, and 100 parts of water.

For effectually rendering woven fabrics fire-proof, tungstate of soda, which comes into the market in the form of white needles, takes the first place. When it is desired to use it for impregnating dresses, covers, curtains, etc., it is dissolved in five times its quantity of water and a small quantity of phosphate of soda is added. The material, after being completely saturated with it, is wrung out and dried in a moderately warmed room. If this substance is used the materials impregnated with it are not only protected against fire, — they carbonize but slowly, — but they preserve their natural suppleness and elasticity. Unfortunately this substance is too dear to find general application. The mixture above-mentioned, of borax and Epsom salts might, however, take its place and is considerably cheaper. Both possess the valuable property that they do not destroy even the finest threads, but those colors which water damages are injured likewise by them. For tissues, in using the two last-mentioned substances, the following is a good proportion for mixing: Shortly before use two and a quarter parts by weight of Epsom salts and three parts of borax are dissolved in twenty parts of water. The latter must be warm and the whole is stirred with a wooden stick until the salts are completely dissolved. Impregnation is effected in the same way as in the case of tungstate of soda, only it is advisable, instead of wringing out the immersed materials, to mangle them between two cloths in an ordinary mangle. If the stuffs are to be ironed out at once and it is desired to give them the requisite stiffness, the necessary quantity of starch is at once added to the warm solution.

Paper and woven stuffs may also be treated with a solution of three parts of phosphate of ammonia, two parts of sal ammoniac, one part of sulphate of ammonia, and a little chloride of calcium in forty to fifty parts of water. If starch is mixed with it at the same time no more water is required, not even for damping down. The stuffs become somewhat harder, but the change is unimportant. A combination of gypsum and sulphate of ammonia, mixed in varying proportions of quantity according as the material to be impregnated is coarse or fine, is said to be also a capital protection against fire, which has, besides, the advantage of cheapness. Vanadates, on the contrary, are dear, but they may be recommended because they do not injure either the colors of the tissues to which they are applied or deposit white crusts on the surface.

There is no need to further extend this list, which includes some very valuable means for arresting the spread of fire. They have all been tested more or less by experts and found efficient. In the immediate vicinity of a flame materials impregnated with them may take fire, but they merely get charred and burn but slowly. Some of the above means have been tried in this country, but not any of them have, to our knowledge, been extensively applied. It appears to us, therefore, desirable that the lessons conveyed by the recent trials with asbestos paint should be noted. The preparation of that paint has been described before, but it may be as well to state briefly once more that the substance known as Italian asbestos is mixed in a finely-divided state with the other ingredients which make up the paint to be used. It has been repeatedly stated and practically demonstrated that paint thus prepared renders the objects to which it is applied as a protective covering perfectly fire-proof. All who witnessed the latest experiment on the Thames embankment a few weeks ago must have come away with the impression that a substance has been found which will resist fire long enough for all necessary measures for the saving of human lives to be taken before the flames become uncontrollable. — *The Builder.*

STRAW LUMBER.

WINFIELD, KAN., September 15, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — If those parties inquiring for manufactures of straw lumber will write to the Lawrence Straw Lumber Manufacturing Company, Lawrence, Kan., I think that they can find out what they desire to know. Yours respectfully, S.

[As there is a possibility that there is another manufactory of straw lumber at Lawrence than that mentioned in our last issue, we publish this with our thanks to our correspondent. — *EDS. AMERICAN ARCHITECT.*]

ROBERT BRIGGS, C. E.

RAGATZ, SWITZERLAND, August 18, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sir,—I have just received the sad intelligence of the death of Robert Briggs, the eminent civil and mechanical engineer, and, as an old and intimate friend, wish to add my share to the tribute of admiration and respect which his memory is sure to call forth from all members of the profession who had the pleasure and advantage of his acquaintance.

My own friendship with him covers a period of more than sixteen years. It commenced with a trip to Europe in his companionship, during which we visited together nearly all the most important engineering establishments in England, Belgium and a part of France, and met many of the most noted engineers and scientists in the places we visited. From the intimacy thus begun, and which has continued unbroken until now, I can testify to the many high qualities of mind and heart which he possessed, and to the high professional position accorded to him both at home and abroad by those conversant with his abilities and with the products of his mind and pen.

One of his most notable traits was the comprehensive scope of his knowledge, which covered almost the entire field of engineering, both civil and mechanical, and included much also of metallurgy, chemistry, architecture and applied sciences. On almost any topic under these many heads he could discourse as a master, with a minuteness and familiarity astonishing to any one but those who knew what an extraordinary range was covered by his own personal experiences in connection with mechanical and industrial operations, and who knew also how far these were supplemented by professional study and reading, continued uninterruptedly during the forty years of his business life. Added to these were the advantages of a good early education, an exceptional aptitude for mathematics (in which he excelled), and a very retentive memory. Apropos of the latter, I recall that during our English trip we made occasional digressions to visit noted historical places, and that at such times he was as full of facts and figures relating to the scenes we were visiting as a student of history, while his knowledge of architecture contributed further to the interest of his conversation. He was an omnivorous reader, enjoying much even of the lighter literature, and a conversationalist of rare ability. His temperament was placid and equable, and his companionship a pleasure which his intimate friends at least can never forget. Among the latter are included many of our most prominent engineers and scientists and not a few of those of England.

During all his life Mr. Briggs was a constant writer on professional topics. Many valuable papers from his pen are scattered through the engineering literature of the past twenty-five years, which it is greatly to be hoped may yet be brought together in one volume. A still larger amount, doubtless of equal value, exists in the form of unpublished manuscripts, studies, notes and records of practice. It is most earnestly to be hoped that measures will be taken to preserve these fruits of many years, and to put them in form available to other members of the profession which Mr. Briggs did so much to promote and in the ranks of which he stood so high.

On the writer his loss falls keenly as that of a dear and valued friend.

Respectfully,

HENRY R. TOWNE.

THE SIPHONAGE OF TRAPS.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Mr. Philbrick is in one respect quite right. When I wrote my reference to his experiments his paper had not yet been published. My remarks related to what he himself told me of his results when I visited his apparatus, some months ago. When he takes it upon himself to "infer that the gentleman commented on the paper before he had read it," he probably forgets what he did tell me.

His reported results are much more decisive than were his earlier ones, but I think not yet fully conclusive.

Yours, etc.,

GEO. E. WARING, JR.

NOTES AND CLIPPINGS.

PRIMING FOR OIL PAINT.—O. Kall, of Heidelberg, prepares a substitute for boiled oil by mixing ten parts of whipped blood just as it is furnished from the slaughter-houses with one part of air-slaked lime sifted into it through a fine sieve. The two are well mixed and left standing for twenty-four hours. The dirty portion that collects on top is taken off, and the solid portion is broken loose from the lime at the bottom, the latter is stirred up with water, left to settle, and the water poured off after the lime has settled. The clear liquid is well mixed up with the solid substance before mentioned. This mass is left standing for ten or twelve days, after which a solution of permanganate of potash is added, which decolorizes it and prevents putrefaction. Finally the mixture is stirred up, diluted if necessary with more water to give it the consistence of very thin size, then filtered, a few drops of oil of lavender added, and the preparation preserved in closed vessels. It is said to keep a long time without change. A single coat of this liquid will suffice to prepare wood or paper, as well as lime or hard plaster walls, for painting with oil colors. This substance is cheaper than linseed oil and closes the pores of the surface so perfectly that it takes much less paint to cover it than when primed with oil. — *Deutsche Industrie Zeitung.*

STRAIGHTENING THE SPIRES OF THE ST. MARIENKIRCHE AT LUBECK.—The St. Marienkirche or Church of St. Mary is beyond question the finest of all the sacred edifices in the ancient Hanseatic port and free city of Lubeck. It was erected in 1304 and is built of brick, in that particular Gothic style which is frequently met with on the shores of the Baltic. The church has three naves, the central one being of the unusual height of 127'. The two towers, which form so conspicuous a feature of the city, are no less than 407' high. For some time past these have required new roofing, but before the work was commenced it was determined, after much discussion, to perform on them a preliminary operation of a somewhat hazardous and uncommon description. Every visitor to Lubeck will have noticed that the two spires are tilted very considerably out of the perpendicular. The height of the tower from the ground to the commencement of the spires is 190', while to the top of the spires the distance is 217' further, making the total elevation as above stated, 407'. The top of the southern spire has for years inclined to the south and west. The deviation from the perpendicular was 12' towards the south and 9' to the west. The rafter work dates from the year 1350. The operation which it was decided to attempt was to bring this spire into its original vertical position. Not a few professional men predicted that the result would be a disaster. However, it was remembered that in the year 1866 a Lubeck builder, Herr Albrecht Grube, had actually performed a straightening operation upon the leaning southern tower of the Lubeck Cathedral with perfect success, and accordingly the authorities were not to be deterred from attempting the same thing with the spires of the Marienkirche. The operations on the southern spire were commenced some time ago, and last week were completed with perfect success. They were carried out by a Lubeck carpenter, Herr Krause, under the direction of a building inspector of the city, Herr Schwiening, who promises to publish a detailed description of the method he adopted in executing the work. All that is at present known on this point is that the straightening of the spire was effected by help of a number of small iron screws. In consequence of this success it has been determined to proceed in like manner with the similarly leaning northern spire of St. Mary's. — *Exchange.*

RELICS FOUND IN A ROMAN TOWER.—A Roman tower discovered in the Sablon quarries in Lorraine has been partly unburied and searched to the depth of about five metres. The walls are in a good state of preservation, being constructed of white stone and held together by a fine red cement harder than the stone itself. A number of interesting relics have been found among these ruins. Outside the tower is some fine sand, to a depth of 1 metre 50 centimetres, while inside a layer of dark earth contained some large pieces of tile and bricks of rather extraordinary dimensions. As the Romans paid taxes according to the number of their tiles, they deemed it wise to have them made as large as possible, and these specimens measure from 0m. 15 to 0m. 40 in length, and 0m. 3 to 0m. 10 in thickness. They are in splendid condition, being of a bright red color and having a metallic sound which indicates the excellence of their manufacture. The Romans exposed their tiles to the air, allowing them to dry before placing them in the ovens, where they were subjected to the highest heat, which, however, was only reached in slow and regularly progressive stages. France was well wooded during the Roman epoch, and for that reason the manufacture of tiles and bricks presented no difficulties. A number of statuettes and coins and inscriptions to pagan deities have been brought to light, and they tend to show that some of these relics belonged to the legions stationed in Lorraine from the year 50 to 300 of the Christian era. The tower is vaulted and is supported on masonry in the form of four arches. — *American Register.*

ELECTRICITY ACCIDENTALLY DEVELOPED BY FRICTION.—A curious instance of electrical development by friction has been observed in a Berlin brewery, though not without causing a good deal of alarm among the workmen. The building is constructed of stone and iron, the floor being laid in asphalt. In the upper story of the malt house was a malt-cleaning machine, from which the malt was taken through an iron shoot to wagons below for distribution through the works. It was found that if this machine remained in operation for a length of time electricity was developed by the friction of the malt with the shoot, and in the most isolated portions of it the tension of the electricity was such as to cause a continuous stream of sparks. The malt itself cracked, while the sparks flew from it to the hands of those standing by, who looked upon the manifestation as one of demoniacal origin. An expert was called in to examine the phenomenon, and the subject was brought before the Electrical Technical Union. Dr. Werner Siemens showed how, through the influence of the asphalt floor, the malt-room was so insulated from the other portions of the building as to become a large Leyden jar. — *London Globe.*

M. CHARNAY IN MEXICO.—M. Désiré Charnay, in reporting to the French Geographical Society the results of his three years' explorations of Central American ruins, mentioned that during his latest journey in Yucatan he entered the remains of a palace, at the town of Kabah, and found on the walls thereof an Indian painting of an armed Spaniard on horseback. This, he maintained, is indisputable proof that the palace was inhabited at the time of the Spanish conquest. Some authorities hold that these ruins belonged to a people long ago extinct, and that they are not less than 3,000, perhaps 10,000, and, according to one traveller, 40,000 years old. M. Charnay will not admit that they are more than 750 years old, and holds that they all belonged to the race which the Spanish invaders found in possession of the country. — *New York Tribune.*

A NEW PROCESS OF DISTILLING TURPENTINE.—Spirits of turpentine, says the *Wood-Worker*, is now made from saw-dust and refuse of the saw-mill. It is extracted by a sweating process, and yields fourteen gallons of spirits, three to four gallons of resin, and a quantity of tar per cord. The spirits has a different odor from that produced by distillation.

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.]

264,081. LOCKING-LATCH.—Freidrich Hasdentel-fel, Iserlohn, Prussia, Germany.
264,116. HOT-WATER HEATING APPARATUS.—Henry Swindell, Allegheny, Pa.
264,117. METHOD OF BURNING BRICK.—Alfred Yates, Cambridge, Mass.
264,118. BRICK-KILN.—Alfred Yates, Cambridge, Mass.
264,206. CURTAIN-FIXTURE.—Charles J. Truemper, Indianapolis, Ind.
264,214. PIGMENT FOR DISTEMPER-PAINTING.—John R. Alsing, Hoboken, N. J.
264,241. LOCK-FAUCET.—William S. Campbell, New Orleans, La.
264,242. FIRE-EXTINGUISHER.—Chas. B. Chace, Cincinnati, O.
264,245. LADDER.—Andrew S. Coles, Mamaroneck, N. Y.
264,250. AUTOMATIC VALVE FOR WASTE-PIPES.—Francis A. Davis, New York, N. Y.
264,254. FIRE-ESCAPE.—William T. Davis, Philadelphia, Pa.
264,262. EAVES-TROUGH HANGER.—Joshua Draper, Jr., Oxford, Ala.
264,273. PNEUMATIC BELL-RINGING APPARATUS.—Robert P. Garsed, Norristown, Pa.
264,275. WINDOW-BLIND.—George P. Gee, Rochester, N. Y.
264,310. TRESTLE.—Thomas P. Maddox, St. Louis, Mo.
264,320. AUTOMATIC CUT-OUT FOR GAS-BURNERS.—Gill W. Metcalfe, Baltimore, Md.
264,332. LATHE FOR TURNING IRREGULAR FORMS.—Hollis C. Faine, Lynn, Mass.
264,334. BRICK-KILN.—Ernst E. Polster, Baltimore, Md.
264,345. FIRE-ESCAPE.—Chas. A. Schnell, Troy, O.
264,352. SAFETY-DEVICE FOR ELEVATORS.—Wm. Henry Skerritt, Jersey City, N. J.
264,386. GOVERNOR FOR ELEVATORS.—Charles S. Westcott, Philadelphia, Pa.
264,393. CUT-OFF FOR CISTERNS.—George Wilson, Vinton, Io.
264,898. BRICK-MACHINE.—Milton Wright, Fort Valley, Ga.
264,404. FIRE-ESCAPE.—Joseph P. Curry, Vincennes, Ind.
264,408. HEATING-APPARATUS.—Ephraim H. Graves, Morrison, Ill.
264,421. BEVEL-GAUGE.—Frederick H. Sweet, Williamsport, Pa.

SUMMARY OF THE WEEK.

Baltimore.

BUILDING PERMITS.—Since our last report sixteen permits have been granted, of which the following are the more important:
John McMann, 2 two-sty brick buildings, Wall St., between Wen and Oetend Sts.
G. W. Taylor, two-sty brick shop, in rear of Greenmount Ave. north of Townsend St.
Jerry Noonan, three-sty brick building, Hillen St., between Front and High Sts.
Michael Igo, three-sty brick building, Doris St., between Bath and Pleasant Sts.
Jesse F. Hampton, 2 three-sty brick buildings, Potomac St., between O'Donnell and Elliott Sts.
Jesse F. Hampton, 2 three-sty brick buildings, Curley St., between O'Donnell and Elliott Sts.
John W. Woods, two-sty brick building, Foster Alley, between Dolphin and Lanvale Sts.
Jacob Saum, 4 two-sty brick buildings, Calverton Road, east of Smallwood St.
George D. Hartwig, 2 three-sty brick buildings, Baltimore St., between Chester and Castle Sts.
Abbott Land Co., 17 two-sty brick buildings, Canton St., between Tome and Elliott Sts.
Henry Hinck, three-sty brick building, southeast cor. Bond and Eager Sts.
House of Good Shepherd, three-sty brick building, southeast cor. Mount and Hollis Sts.

Boston.

BUILDING PERMITS.—*Brick*—Tremont St., No. 159, Ward 10, for Mr. C. T. White, five-sty mercantile, brick and stone, 26' x 83'; Weston & Shepard, builders.
Brookline Ave., rear of near Beacon St., Ward 22, for Boston & Albany R. R. Corporation, two-sty signal-house.
Wood—East Fourth St., cor. Jay St., Ward 14, for Howard Clapp, three-sty dwell., 30' x 45'; Howard Clapp, builder.
Norfolk St., rear Walk Hill St., Ward 24, for Frederick Metzger, dwell., 18' x 24'; G. W. Adams, builder.
East Fifth St., No. 523, Ward 14, for Jas. V. Devine, one-sty and mansard dwell., 21' x 31'; James V. Devine, builder.
East Fifth St., No. 553, Ward 14, for John Pringle, two-sty dwell., 20' x 30'; D. A. Berry, builder.
Codman St., near Dorchester Ave., Ward 24, two-sty dwell., 20' x 30'; Adam & John Law, owners and builders.
Codman St., near Dorchester Ave., Ward 24, two-sty dwell., 21' x 29'; Adam & John Law, owners and builders.

Codman St., near Dorchester Ave., Ward 24, two-sty dwell., 29' x 33'; Adam & John Law, owners and builders.
Walnut Ave., rear of, near Dale St., Ward 21, for Wm. Donaldson, owner and builder, stable, 15' x 22' and 22' x 28'.
Walnut Ave., near Dale St., Ward 21, two-sty dwell., 17' x 18' and 22' x 32'; Wm. Donaldson, owner and builder.
Washington St., rear, nearly opposite Roslin Ave., Ward 23, for Dirk Blylwen, two-sty dwell., 20' x 82'; John Albrecht & Co., builders.
Georgia St., near Montana St., Ward 21, for Isaac S. Chubbuck, two-sty dwell., 20' and 36' x 45'; Wilson Bros., builders.
Fremont St., Nos. 16 and 18, Ward 19, for Anna Julia Krone, two-sty dwell., 27' x 34' 6"; Valentine Brock, builder.
Regent Sq., off Regent St., Ward 21, for Geo. L. Thayer, 2 dwells., 20' x 25' and 27'; James W. Lord & Co., builders.
Columbia St., rear of, near Main St., Ward 4, for John Driscoll, three-sty dwell., 22' x 35'; E. J. Tully, builder.
Highland Park Ave., No. 10, Ward 21, for John P. Riley, two-sty dwell., 32' x 46'; Felix J. Portunato, builder.
Princeton St., No. 38, Ward 3, for John C. Hunter, three-sty dwell., 14' and 20' x 42'; John Hayes, builder.
Princeton St., No. 40, Ward 3, for John C. Hunter, three-sty dwell., 14' and 20' x 42'; John Hayes, builder.
Blue Hill Ave., near Lawrence Ave., Ward 24, for Payson & Co., two-sty stable, 40' x 80'.
Bowen St., No. 171, Ward 13, for James Daley, two-sty dwell. and store, 16' x 28'; J. H. Wigglesworth and J. Drumney, builders.
A St., rear of, Ward 13, for Wm. H. Dole, two-sty shop, 30' x 71' 6"; Mead, Mason & Co., builders.
Centre St., rear of, near Allandale St., Ward 23, for Trustees Adams Nervine Asylum, two-sty hospital, 27' and 31' x 57'; hip; Norton & Chesley, builders.
Washington St., opp. Roslin St., Ward 24, for Jas. S. King, two-sty dwell., 20' x 25' and 30'; Millner & Pinkham, builders.
Station St., near B. & P. R. R., Ward 22, for B. F. Cobb & Co., 2 lumber sheds, 22' x 34'; E. C. Benson, builder.
Conder St., near Putnam St., Ward 1, for Frederick Griffin, stable, 20' x 25'; Frederick Griffin, builder.
Elmore St., rear of, near Mayfair St., Ward 21, for L. L. & G. H. Whitney, stable, 22' x 36'; L. L. & G. H. Whitney, builders.
Lexington St., No. 240, near Prescott St., Ward 1, for George H. Libby, two-sty mansard dwell., 21' 6' x 32'; George H. Libby, builder.
Border St., No. 290, rear of, Ward 1, for John F. Slattery & Co., lumber shed, 20' x 50', office, 10' x 16'; John F. Slattery & Co., builders.

Brooklyn.

BUILDING PERMITS.—*North Fourth St.*, No. 174, being 100' Fifth St., five-sty brick factory; cost, \$8,500; owners, H. Muench & Son, on premises; architect, Th. Engelhardt; builder, M. Smith.
John St., n. s. 48' e Jay St., eight-sty brick storehouse and warehouse; cost, \$50,000; owners, Arbuckle Bros., 62 Willow St.; architect and carpenter, F. D. Norris; mason, Thos. Donlon.
Franklin St., w. s. 75' s Green St., four-sty brick tenement; owner, A. Adler, Franklin St.; architect, F. Weber; builders, D. H. Hulse and A. J. Hulse.
North Tenth St., s. s. bet. First and Second Sts., two-sty factory; cost, \$3,500; owners, J. M. Farrington & Co.; architect and builder, G. A. Kingsland.
Evergreen Ave., e. s. 75' s Myrtle St., three-sty frame tenement; cost, \$4,000; owner, Leopold Michel, Even St., cor. Meserole St.; architect, G. Hillenbrand.
Interior lot, 150' w Washington St., and 50' n Front St., three-sty brick factory; cost, \$3,500; owners, Campbell & Thayer, 81 Front St.; builder, John Guilfoyle.
Broadway, n. e. cor. Fifth St., 5 four-sty iron and brick business buildings; cost, \$—; owner, Jas. R. Sparrow & Son, 106 Kent St.; architect, W. B. Ditmars; mason, S. J. Burrows; carpenter, not selected.
Fork St., s. s. 125' e Jay St., four-sty brick tenement; cost, \$7,500; owner, John Dowling, 265 Wyckoff St.; architect, R. B. Eastman; builders, J. H. O'Rourke and Hart & Boyd.
Magnolia St., n. s. 75' e Irving Ave., three-sty frame tenement; cost, \$3,500; owner, architect and builder, James Williamson, 626 Gates Ave.
De Kalb Ave., n. w. cor. Kent Ave., three-sty brick store and dwell.; cost, \$4,000; owner, Chas. Messerle, De Kalb Ave., near Franklin Ave., builders, E. Suterlin and G. F. Chapman.
Fairfax St., n. s. bet. 300' e Broadway, three-sty frame Home for Aged People; cost, \$8,000; owner, Society in aid of the Aged, on premises; architect, Th. Engelhardt; builders, C. Dahken and C. L. Johnson.
Beaver St., n. s. 562' e Flushing Ave., 3 three-sty frame tenements; cost, each, \$3,200; owner and builder, Geo. Loeffler, 82 Tompkins Ave.; architect, Th. Engelhardt.
Beaver St., n. s. 592' e Flushing Ave., 3 three-sty frame dwells.; cost, each, \$3,200; owner and builder, Geo. Loeffler, 82 Tompkins Ave.; architect, Th. Engelhardt.
Quincy St., n. s. 325' w Throop Ave., 4 two-sty brick dwells.; cost, each, \$3,800; owner and builder, G. De Revere, 663 Greene Ave.
North Henry St., No. 37, bet. Meeker Ave. and Herbert St., 25' from Herbert St., three-sty frame tenement; cost, \$3,500; owner, August Winkler, 33 North Henry St.; builders, Jacob Schoen and J. Mesmer.
Broadway, Nos. 853, 855 and 857, e. s. 48' s Ditmars St., 3 three-sty brick tenements; cost, \$5,500; owner and builder, Fred. Herr; architect, Th. Engelhardt.
Reid Ave., w. s. 20' s Lafayette Ave., 2 three-sty brick dwells.; cost, each, \$3,300; owner, architect and mason, Jno. E. Sagar, 405 Evergreen Ave.; carpenters, J. M. Sagar & Sons.

Myrtle Ave., No. 1568, s. s. cor. Palmetto St., three-sty frame dwell.; cost, \$11,000; owner, John Fincken, Church, cor. Walker St., New York; architect, Th. Engelhardt; builders, H. Westphal and L. Antonius.
Newell St., e. s. 100' n Norman Ave., 3 three-sty frame tenements; cost, \$7,500; owner, architect and carpenter, Samuel Self, 142 Manhattan Ave.; mason, Israel Reed.
Fifth Ave., e. s. 40' s Nineteenth St., 6 three-sty brick stores and flats; cost, each, \$5,500; owner, Mary A. Heartrung, 344 Van Brunt St.; architect, P. H. Gilvary; builder, W. J. Conway.
ALTERATIONS.—*Willoughby Ave.*, No. 703, three-sty frame extension; cost, \$3,000; owner, — Longhi, on premises; architect, Th. Engelhardt; builders, F. Spence and A. McCurdy.

Chicago.

STORES.—Cor. Van Buren and Aberdeen Sts., will be built 2 stores and 3 dwells., 58' x 102', two-sty brick front; cost, \$18,000; Daniel Quill, owner.
On cor. Twenty-first St., and Centre Ave., four-sty store and flats, 21' x 70'; cost, \$9,000; Mr. H. McCarthy, owner; Mr. C. O. Hansen, architect.
BUILDING PERMITS.—H. H. Gage, three-sty flats, 18' x 40', 109 N. Ashland Ave.; cost, \$2,500.
Geo. Deacon, three-sty and basement brick store and flats, 25' x 75', 2830 South State St.; cost, \$10,000.
A. Johnson, four-sty brick dwell., 32' x 40', 67 Fowler St.; cost, \$3,000.
Wm. Collins, two-sty and basement brick dwell., 23' x 48', 871 South Ashland Ave.; cost, \$3,500.
H. Specht, two-sty and cellar brick dwell., 21' x 56', 843 South Ashland Ave.; cost, \$3,100.
F. Kabel, two-sty and basement brick dwell., 22' x 60', 123 Townsend St.; cost, \$4,000.
H. Vollrath, two-sty and basement brick dwell., 25' x 88', 769 Twenty-first St.; cost, \$6,000.
Chas. Passow, two-sty and basement brick shop, 22' x 70', 176 Barber St.; cost, \$2,500.
F. Leon, two-sty brick flat, 30' x 55', Swing St., near Fulton St.; cost, \$4,000.
J. B. Belohrodsky, two-sty and cellar brick dwell., 20' x 53', 864 North Ashland Ave.; cost, \$4,000.
D. Casey, two-sty and basement brick store and dwell., 44' x 63', 2516 South Halsted St.; cost, \$6,000.
Alexian Bros., two-sty and basement brick hospital, 22' x 88', 546 Franklin St.; cost, \$5,000.
Bryan Wadden, two-sty and basement brick dwell., 22' x 42', Nassau and Van Buren Sts.; cost, \$3,500.
Riverside Distilling Co., two-sty barn, 264 and 266 Kinzie St.; cost, \$4,000.
J. C. & L. D. Hammond, five-sty and basement office-building, 42' x 62', 177 to 185 La Salle St.; cost, \$25,000.
J. C. & L. D. Hammond, two-sty addition, 45' x 50', 179 La Salle St.; cost, \$5,000.
H. Paepcke, two-sty and basement brick factory, 30' x 80', 480 Fifth Ave.; cost, \$3,000.
S. A. Kent, two-sty attic and basement brick dwell. and barn, 50' x 96', 2042 Michigan Ave.; cost, \$40,000.
F. Heinze, two-sty and basement brick dwell., 44' x 49', 181 Superior St.; cost, \$5,000.
S. B. Williams, four-sty and basement brick flats, 55' x 70', 113 and 115 Locust St.; cost, \$35,000.
Trinity Lutheran Church, church-building, 45' x 96', 398 and 400 La Salle Ave.; cost, \$30,000.
F. Steiger, two-sty dwell., 20' x 50', 14 N. Halsted St.; cost, \$3,300.
W. Harder, two-sty dwell., 25' x 54', 2838 Dashiell St.; cost, \$3,500.
J. A. Koch, two-sty dwell., 22' x 60', 182 Wright St.; cost, \$4,000.
C. A. Rosenbamm, two-sty dwell., 20' x 32', 678 W. Twentieth St.; cost, \$2,600.
M. Corney, two-sty dwell., 24' x 64', 3600 Wallace St.; cost, \$3,400.
Rev. F. H. Skinner, two-sty dwell., 38' x 40', 1038 N. Halsted St.; cost, \$7,000.
James Bates, two-sty store and dwell., 24' x 60', 676 Indiana St.; cost, \$3,600.
A. Laush, two-sty dwell., 22' x 51', 568 North Ave.; cost, \$4,000.
H. W. Martin, two-sty dwell., 20' x 59', 197 Third Ave.; cost, \$3,500.
T. W. Eaton, two-sty dwell., 39' x 47', 1447 Fulton St.; cost, \$8,000.
M. J. Abbott, three-sty dwell., 22' x 44', 918 Peoria St.; cost, \$4,700.
F. Norrick, two-sty store and dwell., 24' x 50', 99 Nineteenth St.; cost, \$2,500.
D. E. Tracey, two-sty shop, 21' x 58', 2749 Archer Ave.; cost, \$3,000.
E. O. Hare, two-sty shop, 21' x 58', 2416 Halsted St.; cost, \$3,000.
P. Young, two-sty flats, 24' x 60', 347 Burling St.; cost, \$4,000.
James Foley, three-sty dwell., 24' x 60', 210 Centre Ave.; cost, \$7,500.
Thomas Parker, Jr., two-sty dwell., 33' x 80', 1011 W. Monroe St.; cost, \$10,000.
B. Mueller, two-sty factory, 43' x 90', 92 West Van Buren St.; cost, \$9,000.
Jas. Freed, three-sty dwell., 22' x 51', Oak and Franklin Sts.; cost, \$6,000.
Thos. Notapinski, two-sty store and dwell., 24' x 35', 643 Noble St.; cost, \$2,500.
Benedictine Sisters, two-sty school, Market near Hill Sts.; cost, \$8,000.
J. J. Sherman, two-sty dwell., 22' x 50', 360 Jackson St.; cost, \$4,000.
Mrs. E. O'Brien, three-sty flats, 46' x 82', 3540 State St.; cost, \$6,000.
D. B. Shipman, two-sty lead works, 50' x 100', 1516 State St.; cost, \$10,000.
M. Pischa, three-sty store and dwell., 22' x 66', 168 DeKoven St.; cost, \$6,000.
F. Kubat, two-sty dwell., 20' x 56', O'Brien and Union Sts.; cost, \$3,000.
J. F. Doris, two-sty flats, 55' x 308', Bissell St. and Webster Ave.; cost, \$65,000.
J. Philbin, three-sty flats, 25' x 60', 201 La Salle St.; cost, \$10,000.
J. Johnson, two-sty dwell., 27' x 64', Sheffield and Wabansia Aves.; cost, \$2,800.

J. Frading, two-sty dwell., 21' x 46', 155 Sheffield Ave.; cost, \$3,000.

A. Pearson, three-sty store and flats, 55' x 75', Van Buren and Hermitage Aves.; cost, \$18,000.

J. Petersen, two-sty dwell., 21' x 50', Maxwell St. and Blue Hill Ave.; cost, \$4,000.

A. Williams, two-sty dwell., 40' x 44', 1076 Harrison St.; cost, \$6,000.

Geo. Steggler, two-sty dwell., 21' x 50', 912 North Halstead St.; cost, \$3,600.

Therette Tresselt, three-sty dwell., 20' x 60', 297 Lincoln Ave.; cost, \$4,000.

Barbara Titus, three-sty dwells., 60' x 120', 489 Van Buren Ave.; cost, \$24,000.

John P. Ort, two-sty store and dwell., 22' x 44', 448 Twenty-sixth St.; cost, \$4,000.

L. W. Yaggy, six-sty apartment-house, 63' x 65', 143 Dearborn Ave.; cost, \$80,000.

John Featherstone, three-sty machine-shop, 72' x 111', Front and Halstead Sts.; cost, \$17,000.

F. Nerud, two-sty dwell., 21' x 56', 666 Throop St.; cost, \$4,000.

Cincinnati.

BUILDING PERMITS.—Davis Phelan, 2 two-sty brick dwells., Dane St., opp. Jones St.; cost, \$5,700.

P. Eignilant, two-sty brick dwell., Vine St., near Milk St.; cost, \$5,000.

Jos. Darmody, three-sty brick dwell., Gilbert Ave. near State St.; cost, \$2,000.

L. H. Wilson, three-sty brick dwell., Plum St., near McFarlan St.; cost, \$2,500.

Three permits for repairs; cost, \$1,500.

Detroit.

HOUSES.—John Lynch, frame dwell., Cass Ave.; cost, \$4,000.

Henry Stringer, frame house, Baker St.; cost, \$3,000.

A. Beaton, frame house, Grand River Ave.; cost, \$2,400.

W. C. Claxton, frame house, No. 497 Third St.; cost, \$4,000.

Two brick dwells., Nos. 691 and 693 Cass Ave.; cost, \$9,000; A. C. Varney, architect.

Frame dwells., Warren Ave.; cost, \$4,000; A. C. Varney, architect.

Brick boiler-house, No. 110 West Fort St.; cost, \$2,000; A. Chapoton, Jr., contractor.

Frame house, No. 20 Hancock St.; cost, \$2,500; A. B. Crain, architect.

STORES.—Francis Palms, 10 brick stores, Gratiot St.; cost, \$30,000; G. W. Lloyd, architect; A. Chapoton, Sr., and Nuppenan & Clark, contractors.

James E. Scrips, brick store, No. 70 West Larned St.; cost, \$12,000; G. W. Lloyd, architect; A. M. Morris, contractor.

A. E. Hamblin, brick store and dwell., West Fort St.; cost, \$6,500.

ENGINE-HOUSE.—City of Detroit, brick engine-house, Sixteenth St.; cost, \$11,000; Wm. Stott, & Co., architects.

BARN.—A. Backus, brick barn, Woodbridge St.; cost, \$5,000.

STOREHOUSE.—To enlarge brick storehouse, cor. Orleans and Clinton Sts.; cost \$4,000; A. C. Varney, architect.

New York.

OFFICE-BUILDING.—For the Williamsburg City Fire Insurance Company, a building 25' 3" x 110' 4", with ell, 20' x 48', is to be built at the corner of Broadway and Liberty St. It is to be eight stories high; the basement will be of Quincy granite, the first floor of Western, and above the front will be of brick, brownstone and terra-cotta. The cost will probably be about \$150,000; Mr. F. Chas. Merry, architect.

CONTRACT.—The contract for building the Bachelors' Apartment-house at the corner of Fifth Ave. and Forty-second St. has been awarded to Messrs. Jas. B. Smith, Producers & Co.

CHURCH.—The work of rebuilding the interior of the Protestant Episcopal Church of the Incarnation, at the n. e. cor. of Madison Ave. and Thirty-fifth St. in this city, which was entirely destroyed by fire a few months ago, has been begun.

EXCHANGE BUILDING.—The New York Mercantile Exchange has purchased three lots on the cor. of Harrison and Hudson Sts. in this city, for \$70,000, on which they are going to erect a building.

BUILDING PERMITS.—Cherry St., Nos. 198, 200 and 202, two-sty brick stable; cost, \$10,000; lessee, George V. Hecker, 278 Madison Ave.; architects, Wm. Field & Son.

Ave. B, s. w. cor. Sixteenth St., five and six sty brick apartment-house; cost, \$100,000; owner, Hugh Smith, Bowery, cor. Thirty-fourth St.; architect, S. D. Hatch.

Spring St., No. 169, five-sty brick store and lofts; cost, \$18,250; owner, William S. Hicks, 20 Maiden Lane; architect and builder, J. M. Greuell.

East Sixty-ninth St., No. 159, brick and Nova Scotia brownstone stable; cost, \$16,000; owner, John Sloan, 997 Fifth Ave.; architect, C. W. Romeyn; builders, J. & G. Ruddell and A. C. Hoe & Co.

East Fifty-fourth St., Nos. 334, 336, 338, 340 and 342, 5 five-sty brick tenements; cost, each, about \$12,000; owner, James Duffy, 228 East Fifty-first St.; architect, A. Spence.

Lexington Ave., s. w. cor. Ninety-fourth St., 6 four-sty brownstone tenements; cost, each, \$10,000; owners, Stone & Healing, 222 East Seventy-sixth St.

Eighty-seventh St., s. s. 90' e Second Ave., 8 brick and Nova Scotia brownstone dwells.; cost, each, \$8,000 and \$9,000; owner, Mrs. Mary R. Stewart, by W. R. Stewart, 54 William St.; architect, H. J. Hardenbergh; builders, D. & E. Herbert and Grissler & Fausel.

Eighty-seventh St., s. s. 135' 5" e Second Ave., four-sty and 4 three-sty brick and brownstone dwells.; cost, each, \$8,000, and \$9,000 for one; owner, Miss Serena Rhineclander, by W. R. Stewart; architect and builder, same as last.

Third Ave., n. e. cor. Sixty-eighth St., five-sty brick and Nova Scotia stone store and tenement; cost, about \$35,000; owner, F. Aug. Schermerhorn, 68 Wall St.; architect, H. J. Hardenbergh; builders, Marc, Eidlitz and Jas. Elger.

Third Ave., s. s. 24' 5" e Sixty-eighth St., 2 five-sty brick and stone stores and tenements; cost, each, about \$35,000; owner, architect and builder, same as last.

Third Ave., s. s. 24' 1" e Sixty-ninth St., 2 five-sty brick and stone stores and tenements; cost, each, about \$35,000; owner, Wm. C. Schermerhorn, 68 Wall St.; architect and builder, same as last.

Third Ave., s. e. cor. Sixty-ninth St., five-sty brick and stone store and tenement; cost, about \$35,000; owner, architect and builder, same as last.

Forsyth St., No. 72, five-sty brownstone tenement; cost, \$15,500; owner, Julius Steffens, 33 Bowery; architects, H. J. Schwarzmann & Co.; builder, W. J. Gessner.

Eighty Water Ave., s. s. 25' n One Hundred and Twenty-third St., 2 five-sty brick stores and tenements; cost, \$11,000; owner, Henry G. Peters, 57 East One Hundred and Twenty-fourth St.; architect, B. Walther; builder, John Meehan.

One Hundred and Fifty-fifth St., n. s. 50' e of German Pl., three-sty frame tenement; cost, \$3,500; owner, Eliza Naughton, 49 West Twenty-sixth St.; builder, J. E. Naughton.

West Thirtieth St., Nos. 55 and 57, three-sty brick store and dwell.; cost, \$10,000; lessee, James Pursell, Jr., 52 West Fourteenth St.; architect, C. E. Hadden.

East One Hundred and Twenty-fifth St., No. 170, 2 one-sty frame stores; cost, each, \$3,500; lessee, Wm. A. Martin, 537 Seventh Ave.; builder, John Van Dolsen.

Allen St., s. s. 75' n Rivington St., 2 five-sty brick stores and tenements; cost, each, \$10,000; owner, F. Henry and Francis A. Dugro, 56 St. Mark's Pl.; architect, F. W. Klent.

Willis Ave., n. w. cor. One Hundred and Fortieth St., three-sty frame stores and tenement; owner and builder, Augustus Garcia, cor. Willis Ave. and One Hundred and Forty-first St.; architect, Bart. Walther.

One Hundred and Sereneteenth St., n. s. 100' e First Ave., 4 four-sty brick tenements, cost, each, \$12,000; owner, C. Johnson, 101 East One Hundred and Nineteenth St.; architect, R. Rosenstock.

Worth St., s. w. cor. Chatham St., six-sty brick, iron and sandstone store and lofts; cost, \$40,000; lessee, David Rothschild, 42 Division St.; architects, H. J. Schwarzmann & Co.; builders, J. & L. Weber and Henry Schiffer.

Suffolk St., w. s. 100' n Grand St., brick and terra-cotta church; cost, \$30,000; owner, Emmanuel Baptist Church, care J. A. Bostwick, 44 Broadway; architects, D. & J. Jardine.

One Hundred and Eighth St., n. e. cor. Lexington Ave., 21 four-sty brownstone tenements; owner, Elizabeth Meehan, 131 East One Hundred and Ninth St.; builder, H. Meehan.

Second Ave., s. s. extending from One Hundred and Tenth St. to One Hundred and Eleventh St., 10 five-sty brick stores and tenements; cost, each, \$10,000; owner and builder, same as last.

ALTERATIONS.—Wall St., No. 7, internal alterations, etc.; cost, \$5,000; owner and architect, W. Wheeler Smith, 7 Wall St.; builders, J. J. Tucker and J. L. Smith.

James St., No. 26, front and rear, partitions removed and rearranged; cost, \$7,000; owner, St. James R. C. Church, James St.; architect, Wm. H. Hume; builders, James Slevin and Mahony Bros.

East Forty-first St., No. 45, to be raised one sty; cost, \$3,000; owner, Theron B. Butler, 433 Fifth Ave.; architects, D. & J. Jardine.

One Hundred and Sixth St., s. s. 200' e First Ave., one-sty brick extension; cost, \$4,000; owners, Nathan & Dreyfus, 92 Liberty St.; architects, H. J. Schwarzmann & Co.; builders, List & Lennon and John F. Moore.

East Eighty-eighth St., Nos. 157 and 159, to be raised two stories; cost, \$6,000; owner, Henry Schiffer, 214 East Eighty-seventh St.; architect, J. Kastner; builders, J. & L. Weber.

Hester St., No. 71, attic to be raised to full story, also, three-sty brick extension and store front to basement; cost, \$3,500; owner, Ross Flack, 61 Hester St.; architect, John Brandt, builder, Ph. Kottowski.

Philadelphia.

BUILDING PERMITS.—Jefferson St., n. s. between Twenty-fifth and Twenty-sixth Sts., one-sty school building, 28' x 45'; Chas. Beltenmiller, contractor.

Susquehanna Ave., s. s. w. of Ninth St., 10 three-sty dwells., 17' x 44'; Jno. S. Serrill, owner.

Diamond St., n. s. w. of Percy St., 3 three-sty dwells., 17' x 44'; J. S. Serrill, owner.

Worth St., n. s. between Margaretta and Orthodox Sts., 5 two-sty dwells., 15' x 40'; Richard Wunnals, contractor.

Adams St., s. s. between Terrace and Sharp Sts., 5 two-sty dwells., 14' x 32'; Thos. Hagerty, contractor.

Fleming St., s. s. e. of Cotton St., 3 two-sty dwells., 12' x 32'; C. J. Wallace, contractor.

Cresson St., n. s. e. of Adams St., three-sty dwell., 16' x 32'; Robt. Manly, contractor.

Cresson St., n. e. cor. Hermit St., 2 three-sty dwells., 16' x 32'; Robt. Manly, contractor.

Cedar St., near Terrace St., three-sty dwell., 16' x 50'; Robt. Manly, contractor.

Sumac St., s. s. near Wissahickon Station, 2 three-sty dwells., 18' x 63'; Robert Manly, contractor.

Mifflin St., n. s. e. of Eleventh St., 6 three-sty dwells., 13' x 30' and 14' x 30'; Jas. Fraiser, owner.

Clementine St., n. s. e. of Amber St., 4 two-sty dwells., 15' x 28'; Dickson Bros., contractors.

Germantown Ave., No. 2033, three-sty store and dwell., 16' x 108'; H. M. Martin, contractor.

York Pike, below Green Lane, three-sty store and dwell. and three-sty dwell., 25' x 47' and 45' x 45'; Jacob Rorer, owner.

Leshar St., w. s. between Meadow and Orthodox Sts., one-sty foundry, 31' x 52'; S. W. Evans & Son, owners.

Terrace St., s. w. cor. Loftis St., 2 two-sty dwells., 17' x 33'; Chas. Dougherty, owner.

Main St. (Frankford), No. 4507, three-sty store and dwell., 19' x 70'; L. Schaub, contractor.

Eleventh St., cor. Lehigh Ave., one-sty church, 67' x 70'; Jno. Mauder, contractor.

Sixty-first St., w. s. of Pine St., 2 two-sty dwells., 14' x 32'; Jacob Zell, contractor.

Seventh St., s. of Indiana Ave., 3 two-sty dwells., 14' x 28'; F. Heffling, contractor.

Fifth St., n. No. 2512, three-sty dwell., 18' x 60'; F. Heffling, contractor.

O'Neill St., No. 1120, three-sty dwell., 15' x 36'; A. F. Rau.

Fifty-second and Pennsylvania Railroad, three-sty train-house, 27' x 47'; Wm. Smith, contractor.

Fifth St., w. s. n. of Indiana Ave., three-sty dwell., 17' x 42'; C. H. W. Keyser, contractor.

James Ave., cor. Houghton St., 2 two-sty dwells., 16' x 46'; Sylvester Yardley, contractor.

Pratt St., n. w. cor. Melrose St., 2 three-sty dwells., 15' x 42'; Thos. Waters, contractor.

Colton St., n. s. between Wood and Cresson Sts., church-building, 40' x 60'; Edward Struce & Son, contractors.

Point Breeze, two-sty office-building and second and third sty addition to factory, 20' x 40' and 100' x 100'; Atlantic Refining Co., owners.

Terrace St., s. s. n. of Hermit St., 2 three-sty dwells., 18' x 32'; Wm. Goodfellow, contractor.

Bread St., w. s. between Richmond and Washington Sts., three-sty dwell., 20' x 41'; A. W. Linn, contractor.

St. Louis.

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

A. Wilbrandt, two-sty brick dwell.; cost, \$4,300; contractor, A. Wagner.

Jas. Noonan, two-sty brick dwell.; cost, \$2,500; contractor, — Fischer.

F. H. Ludington, two-sty brick dwell.; cost, \$15,000; architect, A. Grable; contractors, Dan. Evans & Bro.

J. W. Roth, two-sty brick dwell.; cost, \$2,800; contractor, J. Schaffner.

F. Meyer, three-sty brick store and dwell.; cost, \$7,000; architect, A. Beinke; contractors, B. Weber & Co.

J. A. Bauer, two-sty brick store and dwell.; cost, \$7,500; sublet.

Wm. Madley, two-sty factory; cost, \$3,000; contractor, Wm. Madley.

M. E. Whitmore, three-sty brick dwell.; cost, \$6,500; architect, J. A. Conlon; contractor, M. E. Whitmore.

W. T. Walker, two-sty brick dwell.; cost, \$2,600; contractors, Kerr & Allan.

A. J. Rockwell, two-sty brick dwell.; cost, \$7,000; architect, J. H. Maurice; contractor, J. H. Maurice.

Washington.

BUILDING PERMITS.—Metropolitan Club, three-sty and basement brick club-house, 62' x 76', cor. Seventeenth and H Sts., n. w.; cost, \$35,000.

Joseph Luckey, 4 four-sty brick dwells., 22' x 36', North Capitol St., cor. C St.; cost, \$15,000.

Mrs. Annie E. Rodgers, three-sty and basement brick dwell., 27' x 59', N St., between Seventeenth and Eighteenth Sts., n. w.; cost, \$16,000.

M. J. Shaw, two-sty and basement brick dwell., 20' x 39', Massachusetts Ave., between Seventh and Eighth Sts., n. w.; cost, \$3,300.

Mrs. M. Peet, three-sty and basement brick dwell., 25' x 38', New Hampshire Ave. and Dupont Circle, n. w.; cost, \$8,500.

Mary E. Haines, three-sty and basement brick dwell., 20' x 33', H St., between Tenth and Eleventh Sts., n. w.; cost, \$2,000.

P. W. Page, 2 three-sty and basement brick dwells., 20' x 60', Connecticut Ave. and R St., n. w.; cost, \$14,000.

Anton Heitmüller, 4 four-sty brick dwells., 18' 6" x 43', Thirteenth St., between Q and R Sts., n. w.; cost, \$12,000.

General Notes.

ARLINGTON, MASS.—Additions and alterations are now in progress on the Arlington Congregational Church, from plans of Messrs. Hartwell & Richardson, architects, of Boston.

AVONDALE, O.—Mr. Samuel C. Tatirn will build a frame and shingle dwelling; cost, \$12,000. Mr. Jas. McLaughlin, of Cincinnati, architect.

COTTAGE CITY, MASS.—The corner-stone of the new Trinity Episcopal Church, the parent church of Martha's Vineyard, was laid last week with appropriate services. The new church will be 46' x 73', and have a seating capacity of 250 people. Cost, about \$5,000.

FAR ROCKAWAY, L. I.—Three cottages are to be built for Mr. P. Donahue; two for Mr. Wm. McKenna; one for Mr. Joseph Warren, and one for Mr. Chas. Webster. All from designs of Mr. Jos. M. Duna, of New York.

HAVERHILL, MASS.—The corner-stone of the new First Baptist Church was laid September 8.

KANSAS CITY, MO.—Hoore, Rhodes & Co., four-sty brick building, 65' x 120', at Hickory St. and Kansas Ave., to cost \$16,000.

J. H. Fink, three-sty brick building, 45' x 80', at St. Louis and Union Aves., to cost \$5,000.

KENNEBUNKPORT, ME.—A frame cottage is now being built for Mr. Frank W. Sprague; Messrs. Lewis & Clark, of Boston, architects.

PLYMOUTH, PA.—The corner-stone of a new Catholic church was laid September 3.

PT. GIBSON, MISS.—A small brick church, 400 sittings, is now being built from plans of Messrs. Ion Lewis & H. P. Clark, architects, of Boston, Mass.

SEABRIGHT, N. J.—A handsome frame cottage, to cost about \$30,000, is to be erected for Mr. Geo. S. Scott, from designs of Messrs. Bruce Price & Freeman, of New York.

SPESTIA ISLAND, MD.—Messrs. C. L. Tunis & Co., contractors, are building a residence on Spesitia Island, head of the Chesapeake Bay, for Mr. C. W. Middleton, of Philadelphia; cost, \$10,000.

WALTHAM, MASS.—The American Watch Company is about to build a large brick stable and carpenter-shop.

YONKERS, N. Y.—A residence is to be built on Broadway, for Mr. Geo. Preene, from designs of Messrs. Silliman & Farnsworth, of New York.

Industrial.

NORTH ADAMS, MASS.—The Arnold Print Works, which a week or so ago began a mill, 113' x 225', have staked out in the yard in front of their main works a building, 40' x 100', two stories.