

JULY 8, 1882.

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

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THE suit of certain owners of real estate to prevent the removal of the reservoir at Fifth Avenue and Forty-second Street, New York, has been heard recently in the Supreme Court of that State. At the opening of the hearing, according to the report of the *New York Times*, evidence was offered by the plaintiffs showing that the Board of Aldermen of the city had passed a resolution expressing their official desire to have the reservoir left standing, and instructing the Corporation Counsel to withdraw the answer he had made to the complaint of the plaintiffs. Upon this the Corporation Counsel, or rather, his assistant for him, who appeared in the ranks of those defending the movement to pull the structure down, replied that the Corporation Counsel was not subject to the orders of the Aldermen respecting the course he should take in conducting litigation, and the judge, in accordance with this view, refused to admit the evidence. The non-legal mind may possibly inquire what use a Corporation Counsel is to a city which has no right to tell him what side to take in cases affecting its inhabitants, but these are questions into which we do not venture to enter. In regard to the value of the reservoir in its present position the evidence presented was conflicting. Mr. Allan Campbell, the late Commissioner of Public Works, now Comptroller, and Mr. Birdsall, a well-known engineer in the Croton Water Bureau, expressed the opinion that the reservoir was unnecessary, and that its demolition would not affect the efficiency of the city water-supply. On the contrary, Mr. Jervis, the distinguished engineer of the Croton aqueduct, testified that he should consider it wrong to remove the reservoir: that in its absence the city would be exposed to danger through a short supply of water, and it might be found impossible without it to combat great fires successfully. Opinions to the same effect were offered by Mr. Bates, Chief Engineer of the Fire Department, Mr. B. S. Church, like Mr. Birdsall an engineer of the Croton Water Bureau, Mr. Edmund Driggs, President of the Williamsburgh Fire Insurance Company, who spoke in behalf of the Board of Underwriters, and General Isaac Newton, the present Chief Engineer of the Croton Aqueduct Bureau, whose judgment is perhaps of as much value as that of any other of the witnesses. Considering the questionable advantage to be gained by pulling the building down, it certainly seems a pity to remove any possible safeguard against the occurrence of the disastrous fires which are sure to come sooner or later. In its present condition the reservoir is not only a picturesque but a beautiful object, covered as it is with vines, and surrounded with terraces of bright flowers. Its dark mass, although extensive enough to have a certain grandeur of effect, is low, and does not cut off light or air of any value, while it serves to separate Fifth Avenue and the dust, noise and smoke of Sixth Avenue by a screen whose destruction would take away a considerable part of the charm of the place, and reduce it to the common level of city squares.

MR. JOHN COWDON, an experienced navigator of steam-boats on the Mississippi River, has prepared a plan for preventing inundations in the valley of that stream by making a new outlet from the river to the sea, through a canal to be cut

from a point on the present channel, about ten miles below New Orleans, to Lake Borgne, whence the water would find an outlet to the Gulf by a short course. The rapid discharge afforded by this outlet would, he thinks, obviate the accumulation of water in the channel, and the inundations which come in consequence, and the cost would be trifling compared with that of the levee system which is now in contemplation. The first estimate of cost for the Lake Borgne outlet was, we believe, about two hundred thousand dollars, but this probably did not include compensation for the land to be taken for its construction, and the proposition now made, and brought before Congress in an amendment to the River and Harbor Bill, is that one million dollars shall be paid Mr. Cowdon for the whole work, including expenses of every kind, the payment to be conditional on the actual lowering of the flood-line of the river at New Orleans to a point four feet below its present level, but instalments to be paid on account at the rate of a quarter of a million for every foot of lowering.

A NEW element is perhaps likely to be introduced into the question of improvement of the Mississippi by a consideration which is suggested in a remark said to have been made by a planter whose land was flooded by the recent inundations, — that the silt deposited by the water had proved so fertilizing in its effect that his gains in the crops of this year promised to offset the pecuniary loss which he had suffered from the flood. We do not know whether other proprietors have observed the same effect, but it is one which, if it is really found to exist, must be regarded as of the highest importance. We have always before us the example of the valley of the Nile, which, nourished by annual floods, has maintained its wonderful productiveness for unknown centuries, and, reasoning from analogy, there is every reason to believe that the Mississippi silt, if properly directed, might serve to retain in perennial fertility a vast area of land whose productiveness is now being either rapidly consumed, or maintained by the use of costly manures. The desolate fields of many parts of modern Virginia, which a century ago were so rich and flourishing, bear witness to the exhausting character of southern farming, and if the Mississippi valley can be saved from a similar fate by the regulated and automatic application of the fertilizer which Nature would bring to it so abundantly, no outlay would be too great for the establishment of the necessary engineering works. It is, moreover, to be remembered that the ordinary levee system, however costly and complete, is necessarily of only temporary service. The silt from the confined stream is deposited in the channel, instead of on the banks, and the water-level rises in consequence, making new embankments continually necessary, until the whole river is in some cases raised like an aqueduct above its banks, the bottom of the stream being higher than the surrounding country. Obviously, a break of the protecting embankment is in such cases peculiarly disastrous, and the danger goes on increasing *pari passu* with the aggregate of the sums sunk in guarding against it. With regulated overflow, on the contrary, the reverse would take place. Not only would the force of inundations, and with it their destructiveness in unprotected territory, be much diminished by the relief afforded through the overflow channels, but the relation between the river and its shores would be changed, the latter rising by successive deposits, instead of sinking more and more below the water-level.

THE great competition for the Victor Emmanuel memorial has reached a new stage. As our readers know, none of the prize designs were regarded as quite suitable for execution, and much dissatisfaction appears to have been excited in Italy by the award of the highest premium to a Frenchman, persons of that nation being particularly unpopular just at present beyond the Alps. Perhaps some idea of deference to this feeling may have influenced the Commission in charge of the monument, but it is fair to suppose that the real impracticability of the design placed first has decided the members to abandon it, and as it would be difficult to adopt one of inferior standing in the competition instead of it, a new beginning is to be made by the opening of a fresh competition, in which all the designs must represent an equestrian statue, situated in the centre of the Piazza dei Termini, and surrounded by a grand colonnaded portico, on the walls of which are to be represented the most mem-

orable events of recent Italian history. Whether the competition is to be restricted to Italians we do not know, although there is precedent enough for such a condition, which would at least remove the danger of foreign interference with the prerogatives of native artists.

THE competition for the new German Parliament-house closed June 10. One hundred and ninety-four designs were received in response to the eight hundred programmes issued, showing that great interest has been taken in the matter by architects throughout Germany. According to the *Bauzeitung* no architectural competition within its knowledge has attracted so many competitors, except that for the Victor Emmanuel memorial, in which two hundred and ninety-nine persons entered the lists. The great struggle for the Hamburg Town-hall was participated in by one hundred and forty-four architects, and the first competition for the Parliament-house by one hundred and two; but the much more interesting project of the Cathedral of Berlin attracted only fifty-one designs, and that for the Vienna Town-hall only sixty-three. It is intended to hasten the decision, so that the drawings may be exhibited, and with this intention three experts have been engaged to examine all the designs, and eliminate those in which the requirements of the programme have not been fulfilled in respect to the position and size of the various rooms.

DISCOVERIES of interest continue to be made at Assos by the little expedition of the Archæological Institute. Quite recently another block of the epistyle of the temple has been found, and the story represented upon the only sculptured Doric architrave known is nearly or quite complete. Meanwhile excavations have been carried on in the lower city, which seem likely to yield remarkable results. The street of tombs is found to have been buried much more deeply in débris than was originally supposed, and a sarcophagus which when first discovered seemed to rest only on a low platform proves to be raised on a lofty stylobate. Several inscriptions have been found and read, and minor objects of utility or beauty are frequently thrown out from the trenches. Further investigations have been made into the construction of the stone bridge which crosses the river, and the main points well ascertained. Not far from the place where Messrs. Clarke and Bacon are winning fame for themselves and the association whose interests they serve, their kind friend of former years, Dr. Schliemann, is pursuing at Hissarlik a new series of explorations, which have already led him to some modification of the received opinion concerning the succession of cities upon that historic spot. Whether the zealous archæologist was driven from his work at Orchomenos, which promised to be so successful, by the illiberal policy of the present Grecian government, we do not know, but it seems rather unfortunate that so much energy and enthusiasm should be diverted from the scene of so many traditions to the comparatively barren field of the Troad.

SOME remarkable discoveries have been made within a few months in Eastern Syria, which we may regard either as casting new light, or as throwing an additional mystery upon the dark problem of the origin of those structures known by the name of dolmens and menhirs, the so-called "megalithic" remains of a race which in some prehistoric age lived, and as we suppose, erected temples to its deities, after one uniform pattern in Asia, Africa, and every part of Europe. It is needless to say that the theory of the Druidic origin of the great stone circles and trilithic monuments of Britain has been generally abandoned, for the reason that the most important of them, at least, are believed to have been in existence ages before the introduction of the Druid cult into those regions; but by the industry of two officers of the Royal Engineers, Captain Conder and Lieutenant Mantell, an unexpected connection has been traced between them and the savage tribes of idolaters whose names are preserved in sacred history. It is only a few years since a society was formed in England for the collection and publication of information regarding the topography of the Holy Land, in the hope of elucidating certain doubtful points in the text of the Scriptures; and in the pursuit of this object a thorough trigonometric survey has been made of all Palestine. More recently the lines of the survey have been pushed across the Jordan into the region known to the Israelites as the land of Moab, and in the course of this operation a great number of monuments have been discovered at Heshbon, about fifty miles

east of Jerusalem, bearing the closest resemblance to those so common in the British Islands and the neighboring portions of the Continent. In this district alone more than six hundred of the trilithic dolmens have been found, besides circles of stones and other familiar forms. The occurrence among them of groups of seven stones recalls at once the story of the seven altars erected by Balak upon the approach of the Israelites to his country, particularly as very many of the dolmens contain cup-shaped cavities in the upper stone, as if to receive the blood of victims, and it would not be strange if further coincidences should serve to connect them with the tribes overthrown by Joshua and his successors. Although not so large as those of Britain, the Moabite monuments comprise blocks of considerable size, many of the stones being eight or ten feet in at least one dimension. As similar structures appear to be scattered throughout the country east of the Jordan, one would expect to find them also in Palestine itself, which, before the arrival of the Israelites, was occupied by tribes of nearly the same origin and habits; but with the exception of a few in Galilee, a district considered by the Jews themselves as somewhat barbarous, none exist west of the Jordan, and the suggestion is made by the *Builder* that the iconoclastic zeal of the reaction against idolatry which took place under the good Hezekiah may have served to obliterate the last vestiges of a worship which was to the chosen people a matter of mortal sin.

NEXT to the sale of Prince Demidoff's collection of works of art at San Donato, the auction of the goods of the Duke of Hamilton, a reduced Scotch nobleman, seems likely to be the most remarkable event of the kind within the present decade. Prince Demidoff's motley collection was sold, it is said, because he was tired of it, and wanted to make room for another, while that of his North British contemporary is disposed of to satisfy the claims of importunate creditors. Except for the existence of some forgeries among them, the pictures are of considerable value, although the prices obtained for them at the sale averaged only about twenty-six hundred dollars apiece. The bric-à-brac sold better, but some of the articles would be considered cheap, as for instance two chairs, which were known to have belonged to Cardinal Wolsey, but brought less than a hundred and forty pounds, or about three hundred and twenty-five dollars each. A cabinet by Boulle brought nearly eleven thousand dollars, and a china teapot nineteen hundred, while one pair of Sèvres vases sold for eight thousand dollars, another pair for six thousand, and a third for forty-eight hundred. Such sales as this, besides the good which they do in removing beautiful things from the custody of persons incapable of appreciating them, to distribute them among those who can, teach another lesson, — that good works of art, no matter how small and unpretending they may be, constitute the very best property in which money can be invested. While the great mass of ill-designed furniture, porcelain, glass or jewelry is pursuing its inevitable round of tawdry fashion, obsolescent shabbiness, and despised decay, the beautiful pieces are somehow cared for and preserved. As their contemporaries pass away they assume the new attraction of variety, or perhaps acquire some interest of association, without losing their innate grace, and every decade adds compound interest to the original value.

MESSRS. Kraft, Holmes & Co., the occupants of a building which recently fell in St. Louis, have, as we learn from the *Scientific American*, caused an inquiry to be made by a committee of experts to determine the cause of the disaster. Upon examination no defects were found except in the basement piers, and a calculation was made of the weight actually sustained by the piers, which showed that each bore a load of about one hundred and eighty-nine tons. The sectional area of each was four and one-half square feet, making the total load per square foot on the brickwork forty-two tons. Although the actual resistance of brickwork to a crushing pressure is far from being definitely determined, all architects will acknowledge that even with the best of materials and workmanship there was danger in exposing the piers to such a strain, and the form, which was in plan that of a parallelogram one foot ten inches by two feet five inches, was by no means well chosen for advantageous resistance. The workmanship was, moreover, not of the best, and it cannot be considered surprising that the piers should have failed, as appears to have been the case.

THE ENGLISH CATHEDRALS.—II.



PETERBOROUGH:—The west front of Peterborough Cathedral—"Peterborough the Proud" as it is called—with the three great unequal arched entrances of its great porch is one of the most easily remembered in England. The dates assigned to the building, which was originally the

church of an important Benedictine Abbey, are as follows:—

1118-1133. *Early Norman*.—Choir and eastern aisles of transept.
1155-1177. *Middle Norman*.—Transept and a small part of nave.
1177-1193. *Late Norman*.—Nave.

Transition Norman.—West transepts.

1200-1222. *Early English*.—West front and remains of Lady-chapel.

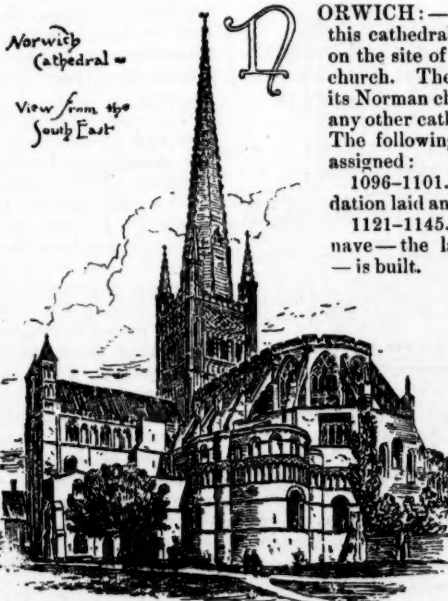
1438-1528. *Perpendicular*.—Eastern aisle.

Peterborough is often compared with the other two Norman cathedrals of almost the same date. The dimensions of the several naves are as follows:—

	Peterborough.	Ely.	Norwich.
Length of nave.	From west transept to western piers of central tower. 211 feet.	From western transept to octagon. 203 feet.	To choir screen. 200 feet.
Width of nave without aisles.	33 "	30 "	28 "
Height.	81 "	72.9 "	69.6 "

The nave is covered by a remarkable painted ceiling of twelfth-century work, which, originally flat, has been altered to a semi-octagonal shape. The central tower, built 1155-1177, proved too heavy for its supporting piers and was taken down as low as the crowns of the great arches, that it might escape the fate of the central towers at Ely and Winchester.

In 1643 the Cathedral was visited by Cromwell himself on his way to besiege Crowland, and as a consequence this cathedral suffered more than almost any other, and at this time all the charters and records were burned.



NORWICH:—The first stone of this cathedral was laid in 1096 on the site of an earlier Saxon church. The building retains its Norman character more than any other cathedral in England. The following dates have been assigned:

1096-1101. *Norman*.—Foundation laid and much work done.

1121-1145. *Norman*.—The nave—the largest in England—is built.

1171. The building is badly injured by fire.

1175-1200. The building is restored and completed.

1245-1257. *Early English*.—The Lady-chapel is built.

1297-1430. *Decorated*.—The cloisters are built.

1356-1369. *Perpendicular*.—

The present spire is built. (In 1856 it was entirely re-faced.)

1426-1449. The west front is altered.

1446-1472. The nave is vaulted.

1463. The spire having been struck by lightning is repaired.

1472-1499. The clerestory and stone roof of choir are built.

1501-1536. The vaulting of the transepts is built.

A distinctive feature of this cathedral is formed by the immense open arcades of the triforium—which do not occur in any other English cathedral.



ELY:—The foundation of the existing cathedral was laid between 1082-1094 on the site of the convent of St. Etheldreda, which had been destroyed by the Northmen. The different parts of the building were built at the following dates:—

1174-1189.

Norman.—The building finished as far as the west end, and the tower nearly to its summit.

1198-1215. The Galilee or western porch is built.

1235-1254.

The Norman

choir is pulled down and rebuilt; the four eastern bays are now in Early English, and the three western bays in Decorated work, built 1338-1362, after the fall of the centre tower.

1332. The central tower (Norman) falls and work is immediately begun on the present octagon, which is finished in 1342. The lantern is of wood.

1321-1349. *Decorated*.—The Lady-chapel is built.

The cathedral originally had western transepts, but the northern one of these fell at an unknown date, caused, possibly, by the building of the upper stories of the great western tower.

The lower (Norman) part of this western tower was built 1174-1189. The middle (Early English) stages were built 1189-1198. The octagon and its turret buttresses are Decorated. The original crowning spire has never been replaced.

The building has been continually in the hands of the restorer, one of the latest of these being Mr. G. G. Scott.

Measured from the exterior of the west porch to the outer face of the eastern buttresses, Ely Cathedral is the longest Gothic church in Europe.

View in Choir



OXFORD:—It would be difficult to find a more interesting study of a greater variety of styles in a smaller space than can be found in the little cathedral at Oxford—Christ Church, the smallest cathedral in England,—although the general flavor of the building is Norman.

Originally the existing building was the Church of St. Frideswide's priory, (1150-1180), which was in 1522 transferred to Wolsey, when he elected to build his college here, and as various additions and alterations have been made between these two periods, the building contains examples of the various styles from Norman to Perpendicular.

The spire is said to be the oldest in England. Its original apex may be examined with great ease, as after some restorations it was erected in the vergers' garden.

The choir was restored in 1856, by Mr. Billings, and considerable restorations have been made as late as 1874.

MODERN HOUSE-PAINTING.¹

A peep
between
the
trees

colonial work, and accumulated in museums in their newest houses, look singularly out of their element, at least to one who looks at them in the light of association, in the many-colored clothing we now put on them. But since we have the clothing it is reasonable that we should have the book of fashions also, and this, not speaking it disparagingly, is what Messrs. Rossiter & Wright have given us.

Criticism of the book is disarmed by the modesty of the preface, which certainly does not claim more than the book warrants. "If there are few," says the preface, "who can even distinguish between harmony and discord of color, how many are there who can give an intelligent answer as to what are the most suitable colors for painting? Even among the painters themselves, whom most people intrust with solving the problem, strange to say, one does not usually find the necessary knowledge and intelligence. It is not the purpose of the authors in this work to supply this deficiency: that would be too great an undertaking." Further on, in the chapter on color, the disclaimer is continued: "Those of our readers who expect to find lists comprising all the various scales of color, giving definite information as to what particular color should be used to harmonize with this or that shade, and telling just what combinations are allowable, and just what are to be condemned, will, therefore, be disappointed." So they will, we may add, by whatsoever book they may turn to with this expectation, however great may be its promises. The authors of this one eschew dogmatic precepts, and for the most part avoid abstract discussion. Even the doctrine of complementaries is barely mentioned, and the opposition of warm and cool tones is dismissed with a word. A little more of general precept might safely have been given, we think, and a small list of safe combinations for the use of the uninstructed; but at least the reader will neither be led astray nor bewildered by æsthetic dogmas, and he may be thankful for the tone of common sense which pervades the work.

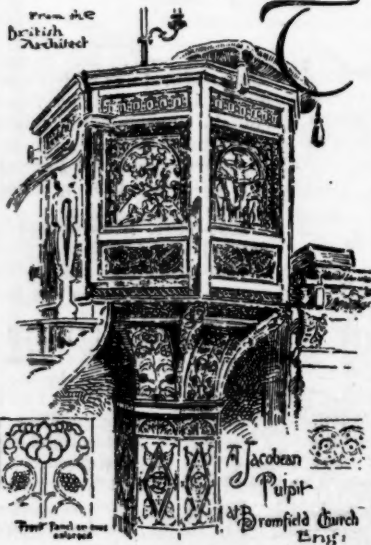
The book, then, is a book of patterns—examples of houses designed as it is the habit of architects here to design them nowadays, and painted as they are habitually painted. There is the usual perfunctory glance at the theory of color, with its primaries, secondaries, and tertiaries, and a recognition of the changes which modern discussion has made in the foundation of the theory. There is also a discreet chapter on the qualities and durability of pigments, including an enumeration, which the inexperienced reader will do well to note, of the painfully few colors which it is safe to use on outside work. The list includes all the colors that we have found to be really trustworthy, and we are somewhat surprised to find the authors, forgetting their caution, not only putting blue-black into nearly all their colors, but occasionally introducing Vandyke brown, mineral green, sepia, and even madder. Of their proposal to use a preliminary coat of crude petroleum on wood we will not venture to give an opinion, but it is perfectly safe to substitute a coat of clear raw linseed oil. The other remarks about preparation for painting are wise, and deserve attention, as do many practical suggestions to be found here and there in the book; but the reader should be warned that outside wood-work which is simply oiled is pretty sure, at least in a New England climate, to turn black.

When it comes to the plates the critic again finds his guns spiked by the declaration that the colors in them "varied considerably from the original designs, and in few cases are they just what the authors had in particular view." It is therefore not easy to do justice to the authors,—as it is not to be sure of how much benefit it will be to the unskilled reader to have examples set before him and be told that he must modify them. One practical precept touching the management of colors is given, which will be a safeguard to the unskilled, as it is a useful aid to the skilled: that it conduces to harmony to carry more or less of a common ingredient through the different colors that are used on a building. This is simply the mechanical statement of the artists' principle, which it would have done no harm to state abstractly, that colors are harmonized by being subdued to a common tone. And here, by the way, we give the word

It is a rather queer phenomenon that the revival of the name of Queen Anne and the resuscitation of a variety of forms from the most colorless periods of English architecture should be coincident with a mania for the use of color in architectural work. The details that our American architects have zealously collected out of what they call

"tone" a wider meaning, and one more conformed to the common language of art, than that given it by the authors, who call it the mixture of "any normal color with either white or black in infinite variety of proportion." In truth the chief means of toning colors advised is to mix them with black, and this is done in almost every example. We are inclined to demur at this universal use of black, which is the prevailing mannerism of the book. The writers say truly that "the tones [tints it should be, by their own terminology] of any color produced by combination with white alone are apt to be weak and sickly in expression." But the truth is that white and black alike take the life out of colors; the difference is that white gives dead high tones, and black dead low tones. If the right tone can be got without either black or white the effect is sure to gain in richness and solidity. The plates furnish the reader a variety of combinations, a good share of which are to be commended as they stand, in spite of the printer's shortcomings. As the more successful we may perhaps select Nos. V, VII, IX, X, XVIII, in spite of a little forcing of color in one or two. We should recommend the amateur to study the plates through the paraffine paper that guards them, which, acting like a glazing, improves their tone. The authors' commendable desire to avoid glare in their colors is in a degree neutralized by their indulgence in a great number of them. Most of the plates show not less than four on the walls, which with the colors of roof and chimney would give six in all. This profusion of tints, perfectly characteristic of to-day's fashion is the chief fault that we should charge against the examples and against the fashion. Patchwork may be more fatal to unity and repose than high color. The prevalence of it is a conspicuous sign of the incapacity for breadth or quiet, which is the stumbling-block of American art. One marked contrast, not repeated in many places, is as much as one house will commonly bear: if there are more than one they should be on opposite elevations, where they cannot be seen together. Our book widely censures "the practice, which obtains to a great extent lately, of picking out small members in a brighter color than the rest, in order to enliven the whole," it might safely have carried its cautions farther in the same direction. The habit of painting all the finish of a wooden house of a different color from the body of the wall, a device which used in moderation is a valuable means of effect, has apparently become inveterate, and has proved itself one of the most mischief-making tricks of the day. We should advise the house-painter not to assume that this is his necessary resource: to think it sufficient if he uses two colors on his walls, unless the third is a closely related shade of one of the other two, or a necessary mediator between them; and in the interest of peaceful interiors and safe eyesight, not to paint his blinds red or orange. For an example of the danger that may lurk in the use of colors which are good enough in themselves, we will point the reader to Plate VIII. Here are five distinct colors on the wall, to which are to be added others for blinds, roofs and chimneys. He will hardly fail to note how such a treatment distracts the eye, and as the writers say on the opposite page, "gives the building a choppy and mincing effect."

THE EXCAVATIONS AT ROME.



HE correspondent of the *Times* at Rome has sent the following communication to that journal, in continuation of those which have been published:—

The excavations at the east end of the Forum are completed for the present. They cannot be carried further towards the Palatine until arrangements have been made for diverting in some other direction the traffic along the road which passes there, and for taking down the little, deserted, and absolutely uninteresting church of Santa Maria Liberatrice. On this subject some of the clerical papers are already beginning to make an out-

cry; but, fortunately, there is the precedent of Paul III having pulled down three or four churches in the locality for the purpose of affording the great Cæsar of the day, Charles V, a better view of the grand remains of the ancient city.

It is to be hoped these arrangements will soon be completed, for at the very spot where it has been necessary to suspend the explorations some constructions of an important character have been found; but as to what they are, or may be part of, no opinion beyond the barest conjecture can be formed so long as the steep cliff of accumulation rising from the ancient level stands there, hiding, like an impenetrable curtain, what is immediately behind.

¹ *Modern House-Painting*. Containing twenty Colored Lithographic Plates exhibiting the use of Color in Exterior and Interior House-painting, and embracing examples of simple and elaborate work in plain, graded and parti-colors. Also the Treatment of Old Styles of Houses; together with full descriptive letter-press, covering the Preparation, Use, and Application of Colors, with special directions applicable to each example: the whole work offering valuable hints and suggestions on Harmonious Color-Treatment, suitable to every variety of building. By E. K. Rossiter and F. A. Wright, Architects. New York: William T. Comstock.

As the workmen were about three weeks ago approaching this spot they found the front and one of the side pieces—fitting exactly to each other, the joint being perfect—of the architrave and frieze of what might have been either a rectangular *ædícula* projecting from a wall and supported by two columns in front, or a doorway of that description, and on the frieze of the front piece was the inscription:

"SENATVS POPVLESQVE ROMANVS PECVNIA PVBLICA
FACIENDAM CVRAVIT"

in two lines of well-cut letters of the best period, measuring five inches in height. As I informed you briefly at the time, Professor Jordan was disposed to conjecture that these were parts of the *fastigium* or pediment placed by the Senate upon the Regia to do honor to Cæsar, to which Cicero referred (*Cic. Phil. II 43*), and which Calphurnia on the night preceding Cæsar's murder dreamt was falling down. This seemed within the bounds of possibility, but it must be remembered that the Regia inhabited by Cæsar was burnt down during the Neronian conflagration (*vide Tacitus*), and these pieces of architrave, with the exception of being chipped a little, are uninjured and bear no traces of fire.

The appearance of the excavations at the time when these pieces were found was exceedingly interesting and curious. I have likened the accumulation as seen from below to a cliff. Against the lower part of this the men worked and excavated each day until it became overhanging, and as dusk approached preparations were made for the next morning by driving thick, sharp-pointed staves, shod with iron, into the summit at a short distance from the edge until a mass was loosened and tons of debris came down like an avalanche upon the level below, disclosing all behind it. By this means we had day by day a series of sections through the remains of this bit of the cities of Rome, built one upon the ruins and out of the remains of another from the days of the Gracchi until the Forum had become the Roman Smithfield—a filthy waste, made picturesque by the groups of campagna cattle lying about under a bright blue sky and among a few shafts of ancient columns half buried in the ground, suggestive only of the painful contrast between the vestiges of so much magnificence and the squalor all around them.

Within, upon, and among walls of the fine brickwork of imperial times, some standing, some prostrate, were others built of every variety of construction—of brickwork of the later periods, of bricks and lumps of stone worked in together, of broken fragments of white and other marbles; there was one piece of wall of good-sized square blocks of peperino, looking like a bit of a mediæval fortress, and another of large but somewhat irregular masses of white marble smooth on the face, that is to say, showing no signs of ornamentation. But on this wall being demolished—for while the later constructions

are, as far as is practicable, also left *in situ*, yet some must perforce be removed—it was found to be built of marble bases turned on end with their lower planes outwards, pieces of architrave and pilasters, and other marble fittings, split up to the required dimensions, and among the rest a row of medium-sized composite capitals laid horizontally with their necks inwards and the foliage hidden in the mortar. Two of these capitals were at once found to agree with the indications on the two pieces of architrave and frieze I have mentioned. Some portions of the shafts of small plated columns, and of a pilaster with an engaged column corresponding in style and dimensions with these, had been found among the ruins at the same place; and on the demolition of the white-marble wall, of which the materials were so richly ornamented within, the construction to which these architectural features belonged was discovered

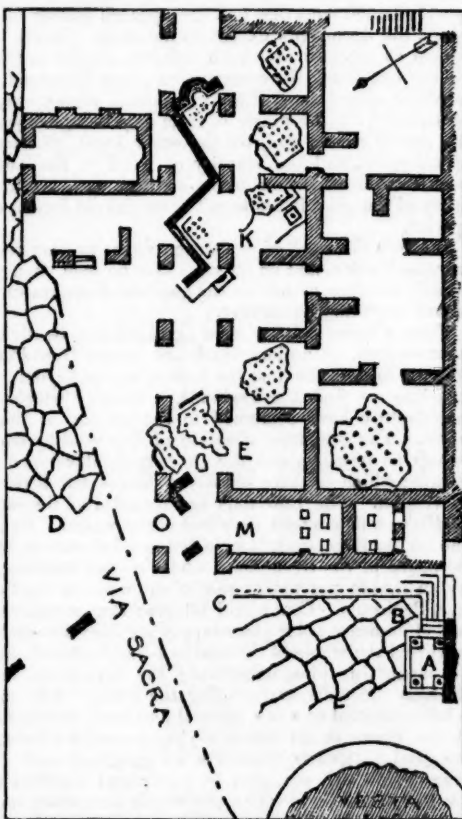
standing out from the accumulation exactly where it has now been scraped. This construction, marked A on the annexed plan, is a small platform of brickwork measuring 10 feet 6 inches on the front, by 8 feet along the sides, and about 5 feet in height, with brick pilasters rising from the two posterior corners, against which the marble pilasters with engaged columns stood. Between these there would appear to have been access to something beyond, but this cannot be ascertained until the excavations are recommenced and continued. This platform was originally faced with marble. There is the white-marble base *in situ* along one side, and from its southeast side, or in other words, its left, as one looks towards it, there extends a flight of five well-worn travertine steps, surmounted by a kind of threshold. At the distance of a few feet from the platform these steps turn at a right angle at B, and continue for 36 feet towards the northeast, without there being any indication of their having terminated there at C. Of the more extended portion of this longer flight only the lowest step remains. Whether there was a corresponding rectangular arrangement of steps opposite to these—that is, on the right of the platform as one looks towards it—cannot be determined, for in the earlier excavations close around the remains of the podium of the Temple of Vesta, the ground close up to the side of the platform had been cut away to a level of some 16 inches below where the steps would have been. I must draw attention to the fact that the platform and the steps, which, judging from the brickwork, cannot date much later than the time of the Antonines, were built upon a pavement, of earlier date, formed of large regularly-placed slabs of travertine, which lie, as a glance at the platform will show, in a direction diagonal to the platform and steps upon them, but parallel and at right angles to the lines of the remains of the Regia in front of which they are situated. As the annexed plan does not include the front of the Temple of Antoninus and Faustina, I must mention that the platform A stands exactly opposite to the three columns of its pronaos, nearest the arch of Titus.

I have described the discovery somewhat in detail for the reason that in it we have a notable, but thus far unknown feature of what in general terms may be called the east end of the Forum in the days of its magnificence. It would be idle to occupy space by considering the different opinions which thus far have been only hesitatingly pronounced regarding it; but for the fuller information of English archaeological scholars, I may add that the line of steps B C stands at a distance of about 32 feet from the approximate position of the lowest of the circular flight of steps of the Temple of Vesta, and there are no more than 15 feet between the position of that lowest step and the northwest corner of the platform A.

The entire removal of the layer of earth left above the pavements of the ancient level, while the excavators' carts were rolling backwards and forwards over them, has afforded fuller information on points which were sufficiently evident three weeks ago, as will be seen by reference to the plan, which is limited to a smaller area and drawn on a larger scale, so as to permit of the details of the Regia found being more clearly defined than was practicable in the more extended plan appended to my last letter. The basalt paving-stones along the primitive—the ante-Neronian—line of the Via Sacra are seen to be in their places as far as D, which is 42 feet beyond the spot marked F in my last plan, and is distant only 65 feet in a direct line past the Temple of Vesta. Further remains of the mosaic floors of the Regia, marked by dots inside, or against double lines to indicate their borders, have been uncovered, extending as far as E to the westward of the travertine bases covered with stucco painted red at K, which I have previously described, and at O another vestige of the walls with red stucco upon it has been uncovered. It is evident, therefore, that the columns at K were internal features, and that the façade was on a line nearer to the Temple of Vesta. These mosaic floors apparently extend also under the remains of a small balneum marked M among the latter edifices built against the back of the line of steps B C, and of which the upper floors at the hot-air chamber, supported on little pilasters, is in a comparatively perfect state. This may, perhaps, have been the Balneum Polycleli which Pausanias mentions in his list next to the Lacus Intemus.

Along and below the level of the front of the columns at K a continuous channel cut in travertine has been found, within it fragments of a lead water-pipe much injured by fire, of which there were very evident traces at this point, even including bits of charred wood. The area on part of the east side of the Temple of Antoninus and Faustina has been cleared, and it is found to be paved with splendid slabs of white marble, scarcely injured, measuring nearly 4' x 8'.

As one of the many instances of how these and previous excavations throw light upon, explain, and confirm passages in the classic authors which have been difficult to comprehend, and impart new interest to them, I may mention that, standing on the lower level with that clear view of the rise of the Via Sacra to the Velia which the removal of the causeway across to the northwest corner of the Palatine now permits, we perceive at once the full force of the adverse opinion expressed by Apollodorus when he told the Emperor Hadrian that his Temple of Venus at Rome should have been loftier, and have had a more imposing aspect towards the Via Sacra. That temple stood in full view of those walking up the incline of the Via Sacra, but situated as it was in the middle and down on the level of the spacious plateau which was constructed for it and which extended to a considerable distance from its end and sides, it must



have presented the same dwarfed or sunken appearance to those approaching it from below and up an incline, as the dome of St. Peter's does to people standing on the Piazza in front of it.

The marble features of the platform A that have been discovered are sufficiently complete to permit of their being restored to their places, and this I understand is to be done—the wanting portions being supplied in plain travertine in the way adopted when the Arch of Titus was recased in the year 1827, and when later the little fallen portico of the Dii Consentes was re-erected on the Clivus Capitolinus.

I have this moment received the gratifying intelligence that the Minister Baccelli has given orders that the excavations towards the Palatine shall be recommenced almost immediately in order to solve the problems connected with the platform described in this letter and suggested by the fragment of the Capitoline plan recently discovered. — *The Architect*.

THE ILLUSTRATIONS.

COMPETITIVE DESIGN FOR A COUNTRY HOTEL STABLE. MESSRS. WILFRED A. NORRIS AND FRANCIS MINOT ("Pegasus"), BOSTON, MASS.

"Pegasus" also offers an hospitable covered entrance, with spacious and convenient carriage-room which would, however, be made more accessible if the doors had been wider. The harness-room also is conveniently placed, but should have communication with the carriage-house. The stable is large and well ordered. The second-floor plans for bedrooms is only reached by a staircase from the living-room, which turns the latter into a mere hall. No provision seems made for washing carriages, nor for a well-house. The elevations are most picturesquely composed and ingeniously treated, the entrance being emphasized by a detached chimney, while opposite a quaint gable challenges attention. The general aspect is that of a building built at different times, rather than by a preconceived and matured plan; yet it is so entirely in the character of a rural barn and stable, and would be such an attractive dependency to a country inn that we give it a high place in the competition.

COMPETITIVE DESIGN FOR A COUNTRY HOTEL STABLE. MR. J. W. H. WATTS ("Paul Kieff"), OTTAWA, CAN.

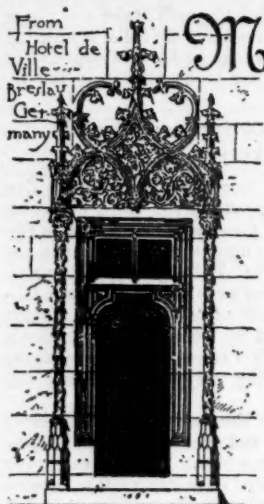
"Paul Kieff" has a very spacious disposition of plan in which the different services are well considered. With so much room we should have been glad to see more accommodation given to visitors not baiting; and the carriage-room though ample is not so convenient for manoeuvring vehicles as if its length were greater in proportion to its depth. It is unfortunate to have to turn so sharp a corner before the visitor can see where to leave his team. The bedrooms cover so much space that they deserve a more special system of light and ventilation than the author's elevations accord them. In other respects the elevations are straightforward and sensible, depending upon their large masses for their architectural effect, and entirely expressing the character and purposes of the building. On the whole this design gives an excellent solution of the problem. The drawing is skilful and sparkling, and the bird's-eye perspective is cleverly conceived and executed.

COMPETITIVE DESIGN FOR A COUNTRY HOTEL STABLE. MR. A. PAGE BROWN ("Jockey"), NEW YORK, N. Y.

The accommodation for carriage-sheds, and one especially for wagons, arranged about a wide yard, as well as the simplicity and easy circulation in the stable gives "Jockey" one of the foremost positions among the competitors. There is throughout his design an air of generous accommodation. It was a capital idea to leave to the centre of the stable the spacious two-storied wash-room with a light balcony around it giving circulation to the excellent accommodations in the second story. The harness-room is ample, but it would be better to have given it more direct communication with the coach-houses; the carriage-house directly adjoining it should open largely into the yard, so that it would then have served for a temporary halting place for teams. The elevations show the same breadth of treatment as the plan. The masses are largely treated, their extreme simplicity giving quiet dignity to an unaffected composition. The pretty and cosey porch and pump in front of the office, obtains an extraordinary value and interest from the simplicity of the rest of the building. It is a charming conceit well placed. We regret to find this interesting design marked "Hors Concours" from tardiness.

THE SMELL OF PAINT.—To get rid of this most objectionable odor in a chamber or a living-room, slice a few onions and put them in a pail of water in the centre of the room; close the doors, leave the window open a little, and in a few hours the disagreeable smell will have almost gone. Another method is to plunge a handful of hay into a pailful of water, and let it stand in the newly-painted room over a night: this plan is also effectual. The foregoing have the important advantage of being simple remedies, as the necessary materials are always easily obtainable. Yet another plan, but it is rather more complicated: Place a grate of lighted charcoal on a piece of flag or slate in the centre of the room, and throw on it a handful or two of juniper berries; shut out all ventilation from the room for twenty-four hours; the doors and windows can then be opened, when it will be found that the nasty, sickly smell of paint has entirely gone. The furniture may be left in the room during the process, and none of it will be injured. — *California Architect*.

FORESTRY IN GREAT BRITAIN.



BOPPE, Inspector of French Forests, recently made a report to the India Office of which the following is an abstract:—

The total area of Scotland is about 20,000,000 acres, hardly one quarter of which may be reckoned as arable, forest, or pasture land, the remainder being occupied by the lakes, rivers, peat-mosses, moorlands, bare rocks and mountains. It is surprising then to find that against such a vast area of uncultivated ground only 734,490 acres, according to the official returns of 1872, are classed as woodlands.

There is every reason to suppose that at a remote period, both the Highlands and Lowlands of Scotland were covered by dense forests, which were successively destroyed by the fire and steel of conquerors, and during the anarchy existing under the old feudal system, as well as by the feudal storms which at almost regular intervals sweep over certain districts. So complete, indeed, was this devastation, that, in 1707, all that remained of the grand old Caledonian forests were a few shreds, and those in a most deplorable condition.

Under the wise patronage of the "Select Society" of Edinburgh, founded in 1754, the area of forest land augmented rapidly, so that, in 1812, Scotland possessed, besides 500,000 acres of natural forest, about 400,000 acres of plantations.

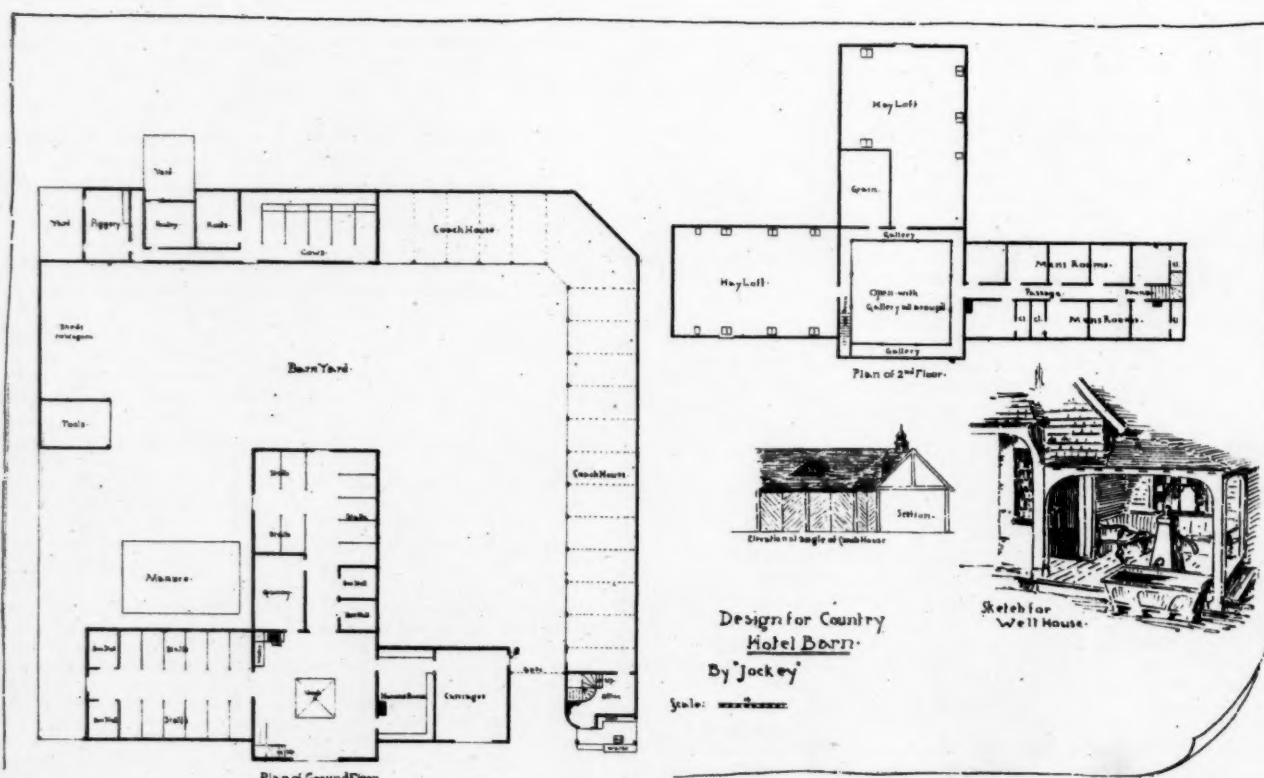
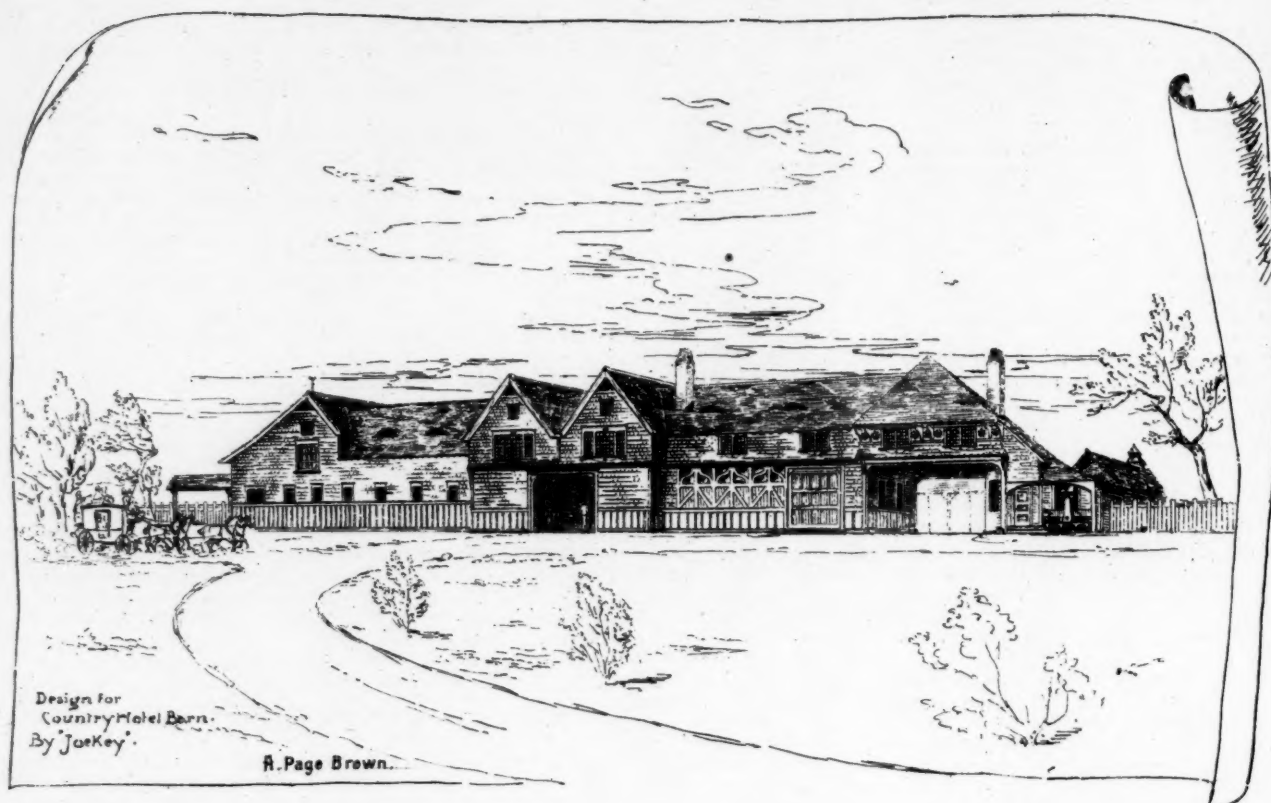
The year 1815 marks a pause in the work of replanting which had been so vigorously begun.

The returns of 1872, as compared with those of 1812, show a diminution of some 200,000 acres in the area of forest land in Scotland. Whether it was a portion of the old natural forest or the newly planted ones that had disappeared during this period of sixty years, the documents extant do not show. There is, however, good reason to suppose that both suffered equally in this respect. For, on the one hand, the construction of the Highland Railway necessitated the employment of a large number of sleepers, which could be procured from the woods of from fifty to eighty years of age, along the line of route; and, on the other hand, the increased facilities of transport, and the scarcity of wood in England, gave an unexpected value to certain tracts covered with birch, and so tempted many of the proprietors to cut down the old forests composed of this species.

In 1870 the work of replanting seems to have recommenced with increased ardor, and on all sides may be seen young plantations vigorously striving to fill up the gap which separates them from those of half a century's standing.

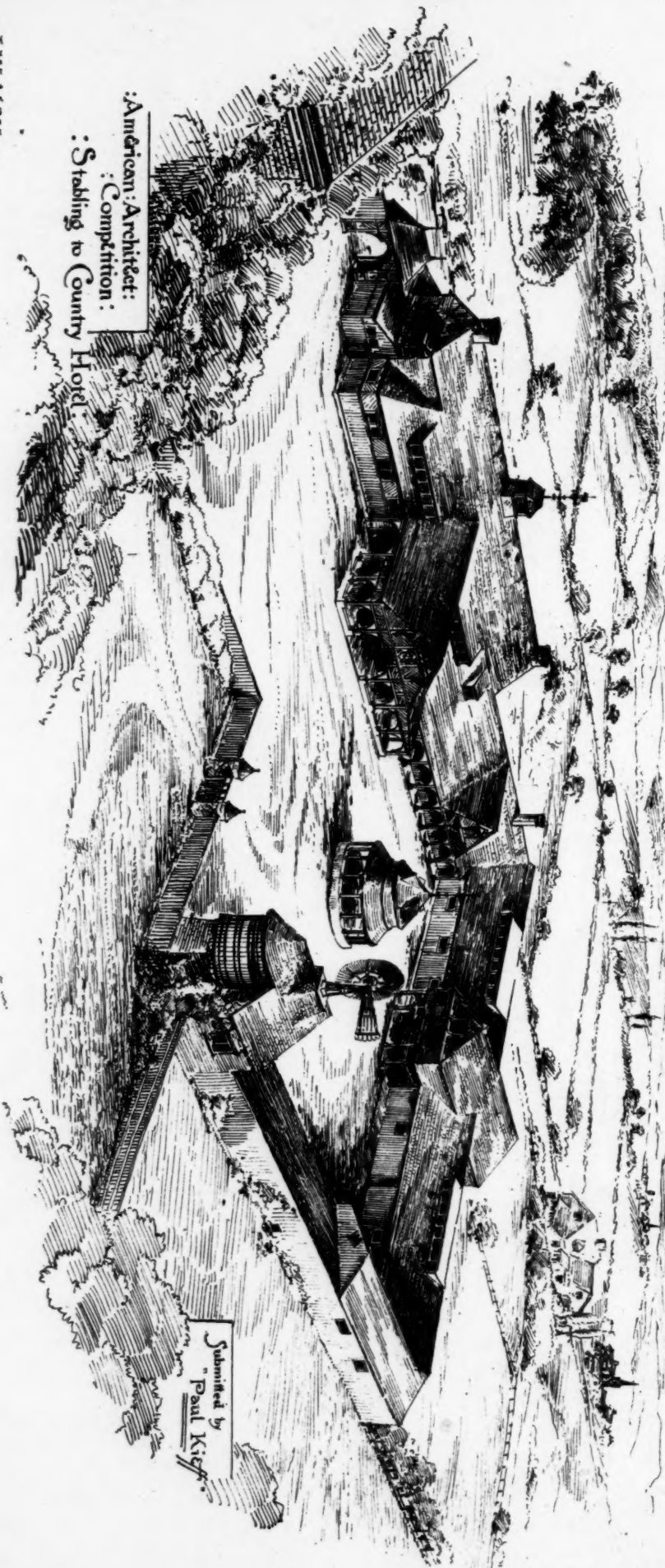
From a forest point of view Scotland may be divided into two distinct regions, by an imaginary line drawn from Perth, on the Firth of Tay, to Greenock, on the estuary of the Clyde. To the south of this line we find the lowlands, a country which agriculture and manufacture have combined to render one of the richest in the world. The economic situation of this wealthy district is as prosperous as possible, and the thoroughly developed system of high farming which is there employed leaves but little room for forest cultivation. The Lowlands are bounded on the south by the Cheviot Hills, which afford excellent sheep-walks. To the north of this line lie the Highlands, intersected in all directions by the far-stretching chain of the Grampians, whose rugged nature gives to the country an aspect not unlike that of the western coast of the Scandinavian Peninsula. One would imagine that at some earlier geological period immense polar glaciers, flowing over the solidified North Sea, traversed the whole of the north of Scotland, polishing on their way the mountain sides, excavating the lake beds, and breaking off abruptly the cliffs surrounding the coast. The culture of cereals is here confined to a few favored localities, situated near the mouths of the rivers or on the low-lying ground bordering the sea, where the glacial deposits constitute an excellent soil. The rest of the country is wholly occupied by water and heather, and thus out of the 13,000,000 acres which this region comprises, only 1,600,000 (or less than one-eighth) are classed as arable, forest and pasture lands. If out of the remaining 11,000,000 acres of unproductive land we allow a half for the lakes, bare ridges, and sterile mountain tops, there will still remain 5,000,000 acres capable of furnishing valuable timber forests. Here, then, is a problem for British economists, and a vast field for enterprise and capital.

In the Highlands, to which we principally directed our attention, the districts around Perth, Elgin, and Inverness, are those in which the most extensive forests are to be found. These three counties together contain about 247,700 acres of forest, and being well served by the Highland Railway system, these are easier to visit than any of the other Scotch forests. Starting from Perth, we made our way across the Highlands, visiting *en route* the towns of Dunkeld, Blair Athole, Aviemore, Grantown, Forres, Inverness, and Beaulieu. We were thus enabled, not only to make an inspection of some of the



J. W. H. Watts

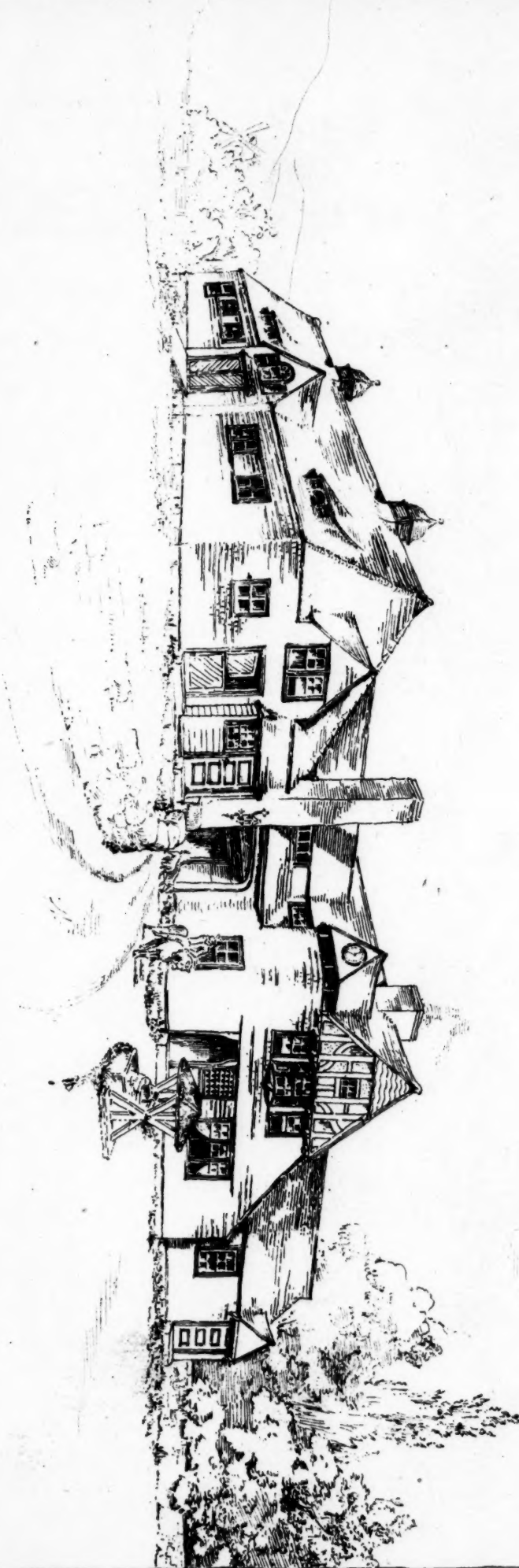
American Architect:
Competition:
Stabling to County Hotel



Submitted by
Paul Kieff

American Architect and Building News. Competitions:
Stable for a Country Hotel
by Pegeus.

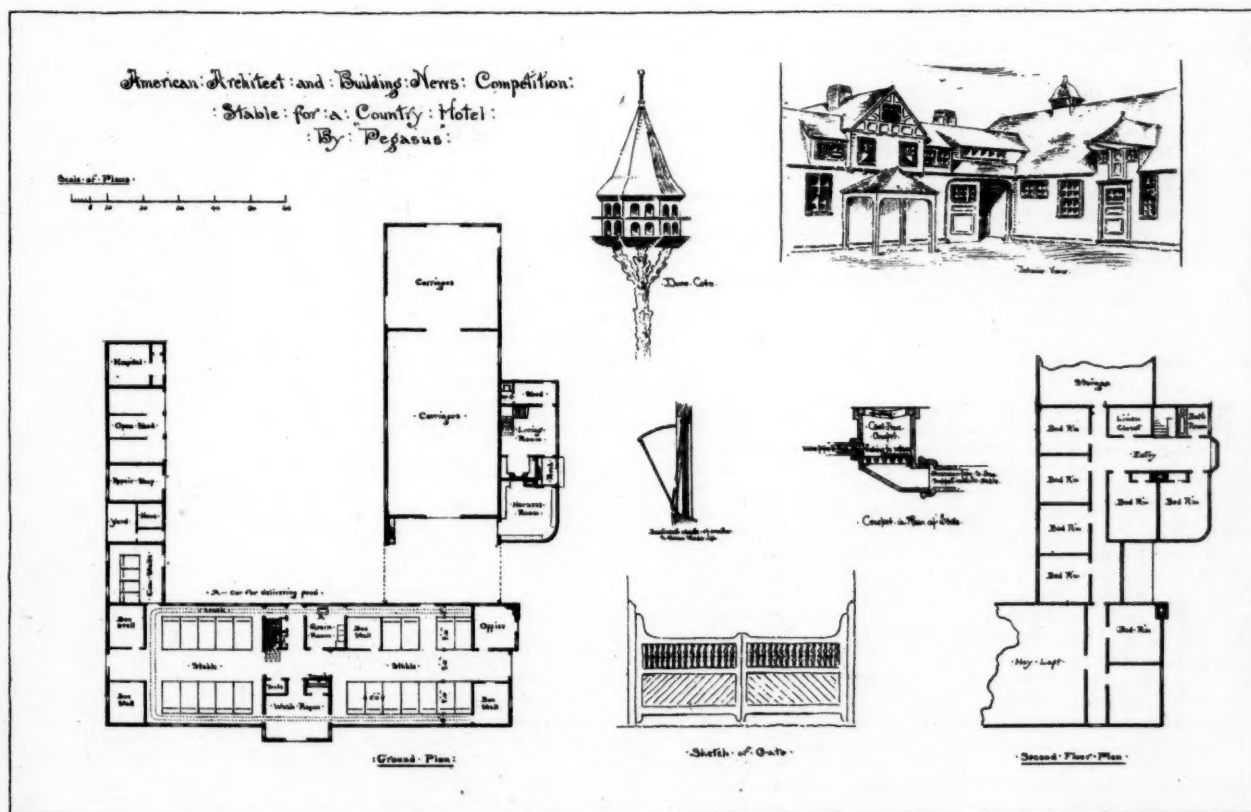
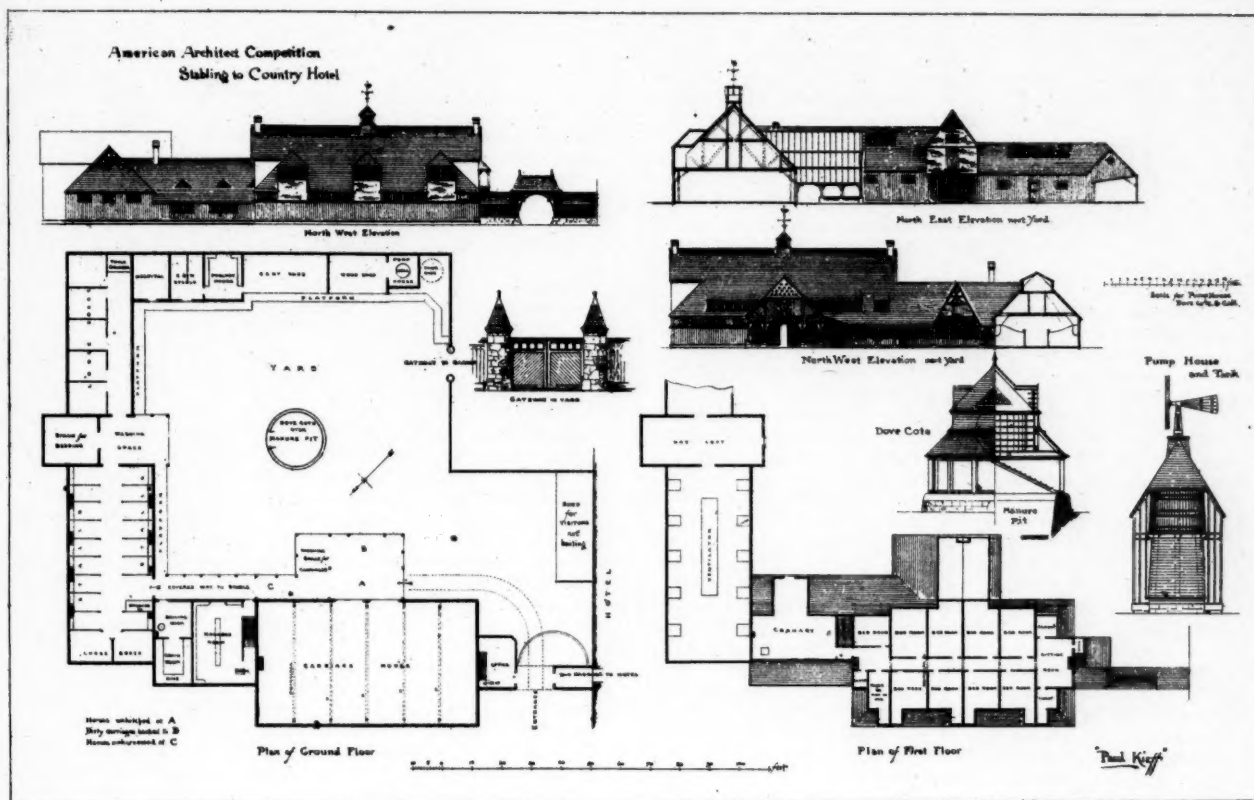
W. F. Norris.
F. Minot.



REPORT ON THE PROGRESS OF THE WORK DURING THE YEAR 1900

By the Hon. the Secretary of the Board of Education

THE SECRETARY OF THE BOARD OF EDUCATION
ALBANY, N. Y.
1901



[illegible]

finest forests in Scotland, but at the same time to obtain a fair idea of the general aspect of the country.

In the low-lying districts, at an altitude of from 250 to 300 feet, we found growing, both singly along the roadside, and collectively in the forests, magnificent specimens of oak, maple, elm, ash, beech, and lime, which, by the vigor of their growth, and the rich coloring of their foliage, bore testimony to the favorable conditions of soil and climate under which they grew. We were struck with admiration in beholding the colossal trees of every description forming the avenues at Scone, Dunkeld, Blair Athole, and Darnaway. It was near the first of these places that the venerable father of Scotch forestry, Mr. McCorquodale, showed us, with legitimate pride, a small oak forest of about 400 acres, which sixty years before, he had himself assisted to plant. In this forest, the trees were standing about 24 to 30 feet apart, and their diameters measured from 12 to 18 inches, whilst their magnificent tops formed a perfect canopy of leaves above the bright rhododendrons, in which colonies of young pheasants found a home. In the spring time this ought indeed to be a fairy-like spot. But, independently of this undergrowth, which is, after all, only suitable for the wealthy few, we cannot help thinking that a more careful study of this superb forest would go far towards clearing up some of the doubts which have always surrounded the difficult question of the cultivation of forests composed solely of oak.

The mountain vegetation commenced at about four hundred feet above the level of the sea; beyond this we find ourselves in the domains of the Scotch fir, the larch, and the birch.

In selecting the Scotch fir as the tree to be cultivated before all others in these regions, the promoters of forest plantation, during the latter half of the past century, showed no mean proof of their thorough appreciation of the natural requirements of the soil and climate of the Highlands, for not only have they insured the success of their operations, but they have traced out the best line of action for their successors.

Equally fortunate were they in their endeavor to introduce the larch into Scotland; transported from the ice-bound summits of the Alps to a country where the climate is tempered by the softening influence of the Gulf Stream, this tree does not appear to have suffered to any material extent by so sudden a change of latitude.

When in 1737 the Duke of Athole brought home amongst his baggage, as a kind of remembrance of his travels in Tyrol, the seeds which were sown in his park, and from which sprung the first larches in Scotland, he rendered a most valuable service to his country.

From a forest point of view, the results obtained by the cultivation of these two species (Scotch fir and larch), are truly marvellous. Any one who has seen the beautiful larch forests, planted in 1815 on the banks of Loch Orrie, and the vast stretches of Scotch fir covering the flanks of the Briarwood Mountain, cannot fail to admit that the question of the replanting of the Scotch Highlands is practically answered.

The absence of the beech from all the forests of any standing is easily accounted for by the fact that it is only quite recently that the timber of this tree has become of any value for industrial purposes. For many cultural reasons, however, the beech is a tree of the highest importance, and we should strongly recommend its introduction into all future plantations, and it is, moreover, as much indigenous as the Scotch fir and birch. In many cases even it might with great advantage be substituted for this latter, or, better still, mixed with it.

Considering, too, the wonderful success that has attended the introduction of the larch, we think that a similar attempt might be made to acclimatise the *Pinus montana* in the peat mosses.

We were also struck by the monotonous regularity in the height and age of the trees, unmistakable sign of their artificial origin, and want of methodical management. The forest, here left to its own devices, continues growing just as the hand of man has planted it; the undergrowth is constantly grazed down by the sheep and cattle, and nature, in spite of the immense resources at her disposal is quite powerless to modify the work of the planter, or repair the errors committed by woodcutters.

When, under such circumstances, the time arrives for the trees to be cut down, or should they be uprooted by a hurricane, the forest disappears in its entirety, owing to the total want of young growth which is necessary as a link between the old forest and the new one which ought to be created. Such, at least, appears to us to be the case in all the forests that we visited in the valley of the Tay and its tributaries, and further north, near the foot of Cairngorm.

It is an established fact, beyond all contradiction, that on any soil, whatever its geological origin, a complete covering of forest vegetation will kill the heather as soon as the trees reach the age of between thirty and forty years. Suppose then that one hundred and twenty years be the term fixed for the existence of the trees in any portion of the forest, and that the trees of one hundred years and over are reserved, there would still be one-half of the forest always open to the sheep, and the other closed. But, at the same time, it is certain that this open half, owing to its superior quality, will furnish pasturage for at least twice as many head of cattle or sheep as the same quantity of moorland.

Although, under ordinary conditions, the regeneration of a forest will be sufficiently assured by the exercise of a discreet control over the grazing, something more than this must be done if it is desired to turn the land to the best possible account. It is, therefore a mat-

ter of regret that nothing has been done to place forest management in Scotland on a sound economic basis.

The productive powers of the soil and of the climate have been made use of by able and intelligent planters, who have thereby enabled nature herself to accumulate a considerable store of timber; but all this wealth is exposed to the carelessness of some and to the ignorance of others, until the hand of a forester manages it properly, and places it on the only sound economic principle of all agricultural and forest property—a constant annual revenue, and a constant improvement in production.

No doubt people are often frightened by the long names and big words they find in treatises on scientific forest management, but they may very well neglect the text if only they will adopt some of the principles which they contain. Let the owner of a forest, after having made a careful and detailed inspection of it, divide it off into blocks or compartments, so arranged that they should be uniform as regards conditions of soil and of planting, and then proceed to count and measure all the trees of three feet girth and upwards, classing them in categories according to their diameter. He should then open a debit and credit account for each compartment, placing on the debit side the actual volume of the standing crop, and on the credit side the volume of timber removed at each successive felling. The register should always be consulted before undertaking any forest operation, and when the annual fellings fall due, it will show which compartments can best support the withdrawal of timber, and which require to be left untouched. Moreover, the balance-sheet will render an exact account, favorable or otherwise, of the condition of the forest.

Ten years of such systematic treatment would form in itself the basis of a regular working plan, and the doctor's prescription would no longer frighten the patient with his long words.

Windsor Park is indeed one of the most magnificent fields for the study of forest botany that even the wildest imagination could conjure up. Here may be seen, growing singly or collectively in clumps, specimens of all the finest trees, native or exotic, which exist in Great Britain; and, since care has been taken to keep an exact record of the age and origin of each plantation, the forester would be enabled to follow out in detail studies of the highest interest and importance regarding the growth of the principal forest species. It would be more difficult to do the same with regard to their longevity; for one is led to think, in looking at some of them, that, in this hallowed ground, trees never die of old age. One sees in these relics of the past, that religious respect for things so characteristic of Englishmen, when even the most violent revolutions could pass over the country, and yet leave these monuments and these trees intact.

New Forest.—For many centuries the New Forest has been a prey to commoners, who use up its resources without either method or control. One may see there the steady onward progress which is made by the heather; and although it is not perhaps so quick under the feet of the almost wild ponies and cattle as under those of the sheep, yet it is none the less sure.

The sole remedy for this state of things was to restrict the commoners to certain defined localities, and that could only be done by sacrificing a portion of the forest to save the rest. This is in fact, what was done about twenty years ago; but the sacrifice has indeed been a heavy one, for the reservation of some 14,000 acres has cost the abandonment of 49,000 more. The part which has been freed, however, is sufficiently extensive to constitute some day a respectable forest, while the part given up is hurrying to its destruction in a manner deplorable to behold, and before very long, there will be nothing left but a worthless barren heath.

Without contesting the marvellous beauty of some parts of the New Forest, so dear to artists and lovers of nature, we are bound to say that before long if will not be here that a professor of sylviculture, desirous of teaching his science, will choose to pitch his tent.

Forest of Dean.—The present Forest of Dean occupies the site of the old forest of the same name, which formerly covered the whole of the plateau between the estuary of the Severn and the valley of the Wye ("Dean," "dén," signifies "forest" in the old Celtic language). The old forest has disappeared within the last few centuries, owing perhaps to the demand for charcoal and mine-props for the local industries; if, however, we were not afraid of being accused of being prejudiced, we might say that unrestricted pasturage may have had something to do with the disappearance. It is on these rules that the new Forest of Dean has been created; in less than a century, more than 16,000 acres of the original 22,000 have been replanted. The older plantations are generally of pure oak; the beeches, chestnuts, and birches form but a small percentage of the trees. Scotch fir, spruce, fir and larch are generally only found in the plantations made during the last thirty years, or in bad peaty portions. The state of vegetation is generally good, varying, however, with the quality of the soil, but indicating in every point the artificial nature of the soil.

We may take this opportunity of remarking that a plantation of "broad-leaved" trees (oak, beech, etc.) takes a much longer time to establish itself than one of the "needle-leaved" trees (conifers, Scotch fir, larch, etc.) In Scotland we saw the most magnificent plantations of larch and fir, whilst in the Forests of Dean the plantations of oak were always more or less dwarfed in appearance. The cause of this is that oaks furnish the soil with much less vege-

table manure than the coniferous trees; and again, in an oak plantation there is a marked absence of undershrubs and spontaneous ground vegetation, which, by their organic remains, tend to increase and improve the surface soil. It is rare also that a plantation of oaks, on a soil which has been long unoccupied by forest vegetation and is but moderate in quality, succeeds well during the first generation: it is only at the second generation that the trees acquire their normal development.

At present, while the trees are yet in their youth, the only cultural operation that can be undertaken are the periodical "thin-nings," and these are here conducted with great skill. There is, no doubt, however, a future in store for the Forest of Dean, thanks to the workmanlike manner in which it is managed, and to the laws regulating the pasturage, which date back to the time of Charles I.

In answer to the question whether the immediate foundation of a forest school in Great Britain is possible, M. Boppe went on to make the following recommendations: After making every allowance for the great fertility of the soil in Great Britain, we feel certain that in many districts more than one of the forests which were cleared some time back would now be jealously preserved by the same proprietors who formerly cut them down to satisfy their pressing wants.

It must also be borne in mind that the British Empire is not confined to Great Britain and Ireland, and that, by reason of her immense possessions, England is, perhaps of all nations in the world, the one most richly endowed with valuable forests. It is by hundreds of millions of acres that we may reckon the forests of Canada, India, and Australia, New Zealand and Cape Colony, not to speak of those in the West Indies and Borneo.¹ All these natural sources of wealth are worked by British enterprise and British capital, and, consequent on the present wonderful development of commerce throughout the globe, it is a matter of importance to every civilized nation that this vast accumulation of forest riches should not fall into the hands of ignorant persons, or be squandered away, regardless of the future.

For these reasons the establishment of a Forest School in England becomes a matter of primary importance.

The science of forestry is, however, a science of observation, based upon facts which must be studied both from a practical and theoretical point of view. It is therefore absolutely necessary that a Forest School should have attached to it a forest which has for some time past been under scientific management, serving, so to speak, as a natural laboratory for experiments, and without which the best theoretical teaching in the world would be of no avail.

It is necessary also to take measures for preparing the public mind to regard the science of sylviculture as an additional means of developing the national resources, and to take steps for the gradual creation of accessory forests.

This accessory forest must necessarily be incomplete at first, but would be perfected in time; but the essential point is that it should be placed under the absolute control of the officers of the school. This can only be done by choosing a State forest. If it should be considered desirable also, in order to render the teaching more complete, the State ought to purchase or lease in Scotland a forest suitable for the purpose.

We would also suggest the founding of Professorships of "Forest Economy" at two of the great public seats of technical instruction. One of these might be instituted at Cooper's Hill for England, the other at Edinburgh for Scotland.

The professors should be selected from among the young men who have received a thorough forest education on the Continent, and have had eight or ten years' practical experience in India. They should publish from time to time a series of articles in the leading agricultural and forest journals, in order to influence the landowners in favor of a systematic management of their woodlands, and to prove to them that uncontrolled pasturage is the certain destruction of forests, and that, in the long run, the timber furnished by forest land is of greater value than pasturage or game.

In conclusion we beg to submit the following recommendations:—

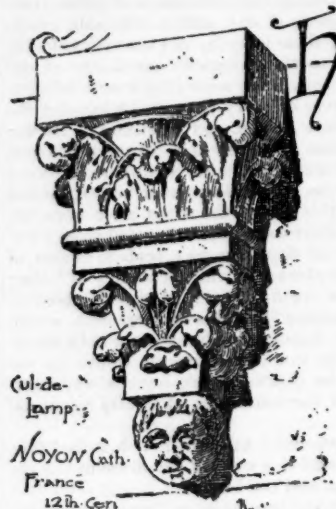
1. That a National Forest School be founded in Great Britain.
2. That Professorships of Sylviculture be instituted at Cooper's Hill and at Edinburgh.

Such are the conclusions at which we, in conjunction with our travelling companions, Messrs. Reuss and Bartet, have arrived, and we feel that an apology is due for their length. This is really due to the excessive courtesy of our hosts, who, jealous of the success of Jules Verne's hero, who made the tour of the world in eighty days, were determined to make us traverse, in less than three weeks, more than 300,000 acres of forest land situated in the most opposite parts of Great Britain, from Cape Duncansby to St. Catherine's Point.—*Journal of the Society of Arts.*

ARE CITIES EXPOSED TO LIGHTNING?—The theory that multitudinous high buildings and tapering spires so distribute electricity that severe and damaging thunder storms are rare in great cities is strengthened by the fact that up to June 2 London had not been visited by a single thunder storm, whereas fatal accidents from lightning had been unusually numerous in the Midland counties of England. On the other hand the same theory is curiously contradicted by the records of the Berlin Fire Brigade, which show that recently, in a single hour, the brigade received twenty-eight calls to extinguish fires caused by lightning.—*New York Tribune.*

¹ The total extent of the forests in the British possessions is 340,000,000 acres of timbered land.

THE COMPARATIVE VALUE OF TESTING HOUSE-DRAINS BEFORE AND AFTER OCCUPATION.



HIS Royal Highness, the Duke of Connaught, has done good public service in suggesting to Professor Playfair the propriety of placing before the medical profession the defective sanitary condition of his residence at Bagshot Park, as no better illustration can possibly be given as to the necessity for having dwelling-houses thoroughly tested before passing from the hands of the constructors to those of the occupants. The note, by Professor Playfair, "On the Sanitary Condition of Bagshot Park," possesses much more than a general interest to the medical profession, who have to do with the treatment of disease: it concerns more immediately the general public, who are exposed, from faults

of construction and workmanship, to the incidence of disease and the consequences thereof.

Bagshot Park, it appears, is an entirely new building, recently erected at a cost of from thirty to forty thousand pounds, and we doubt not that His Royal Highness, when he entered on the occupancy thereof, was under the impression that its sanitary arrangements were perfect in construction and workmanship. He had a right so to conclude; for the drainage system, as regards arrangement and ventilation, had been submitted to, and examined by, Sir Howard Elphinstone, R. E.; and doubtless the best architects and the most trustworthy tradesmen had been employed in the construction of the mansion. Possibly the Duke of Connaught took no special interest in that portion of his mansion which was hid from view by boards, pavement and marble, and the propriety of having the drainage system tested may never have occurred to him; but it is more probable that His Royal Highness placed implicit confidence in the comptroller of his household, that the comptroller of the household placed implicit confidence in the architects, that the architects placed implicit confidence in the clerk of the works, that the clerk of the works placed implicit confidence in the builders and plumbers, that the builders and plumbers placed implicit confidence in their foremen, that the foremen placed implicit confidence in the journeymen, that the journeymen placed implicit confidence in the apprentices and laborers, and that the apprentices and laborers placed implicit confidence in the general principle of *how not to do it, or how to do it with the least possible trouble.* We may be wrong in placing the onus of blame on the apprentices and laborers engaged in the construction of the drains and pipes of Bagshot Park; but we cannot be far wrong in stating our opinion that His Highness has been the victim of a system which, as regards its results, closely resembles the *confidence trick*, Bagshot Park having been a veritable house that Jack built, all engaged in the construction thereof from the comptroller of the household down to the hodman and the heater of solder-irons having been honorable men; all the mischief having been done by that invisible ubiquitous urchin, the *confounded boy*. Had His Highness suggested the propriety of having the drainage-system of his mansion submitted to rigid experimental tests before it was occupied as a dwelling-house, he would probably have wounded the tender susceptibilities of all concerned, from the baronet down to the heater of irons and the mixer of mortar; but he would thereby have saved himself much money, more discomfort and inconvenience, and exposure to what might have been a fatal illness; for it will be necessary to gut out Bagshot Park and reconstruct it before it can be safely occupied as a residence. In view of the results, no one will be disposed to deny that it would have been much better had Mr. Rogers Field been requested to test the building before occupancy rather than after an experimental test had been applied to Her Highness the Duchess of Connaught.

The examination made by Mr. Rogers Field revealed a state of matters almost incredible, and if such conditions exist in houses built presumably with the greatest care and regardless of expense, what can we expect to find in mansions of a less pretentious nature—in the isolated dwellings of the middle classes, and in flatted tenements erected by needy speculators? The answer to this question is not far to seek, for we have been made acquainted with the results obtained through the operations of the Sanitary Protection Associations of Edinburgh, London, and other places. In London, we are informed that about six per cent of the houses inspected have their drains choked, so that the whole of the sewage oozes into the basement; in short, they have no real connection with the main or public sewers. Over thirty per cent of the whole houses inspected showed considerable leakage of sewer-gas through faulty pipes, as ascertained by the usual tests. We have every reason to believe that these astounding results are very considerably underestimated,

and that not five per cent of the house-drains in our abodes are sewage and gas tight.

Now what does all this mean? It may be said to mean that sewage-sodden basements and houses which are, in virtue of their construction, little better than ventilating-shafts to the main drains, cannot be so very injurious to the health of the occupants, else all would suffer more or less, and many would die from the effects of the inhaled products of decomposition. We need not enter on the discussion of the medical question as to the connection of enteric, typhus, diphtheria, and other diseases with such insanitary conditions, as medical opinion on this subject is not quite unanimous; but we presume that few will deny that there is such a disease as systemic poisoning depending on the entrance, by some means or other, of the products of a certain kind of putrid decomposition into the circulation. Such insanitary conditions may prove a nidus for the propagation and dissemination of disease germs, such as those of typhus, typhoid, scarlet fever, diphtheria, cholera, and other diseases; but, apart altogether from such dangers, which can only be viewed in the light of an added quantity, we have a specific fever, which may be called drain fever, closely resembling typhoid in many of its symptoms. We may also have, and do have, such diseases as puerperal fever, erysipelas, etc., originating directly from defective drainage. It would be difficult to estimate the number of cases of illness, and of cases of illness resulting in death, due to such toxic influences; but we would expect to find more of them in such mansions as Bagshot Park than in humbler dwellings, as the more comfortably the mansion is heated up for the benefit of the invalid the more certainly will the sick chamber be converted into the ventilating shaft of a common sewer, or of the sewage-sodden soil of the basement.

An atmosphere polluted by sewer-gas, whatever its specific toxic influence may be, must mean an unhealthy atmosphere, specially so to the young, to the delicate, and to invalids, the degree of its unhealthiness being dependent on the conditions under which the sewer-gas is generated.

We may now consider the remedies proposed to meet these dangers.

1. No house should be occupied as a human habitation until the sanitary condition of the house, as regards drainage and other matters, has been tested by a competent inspector. We urgently need legislation on this subject, and it is to be hoped that a clause securing compulsory inspection of this kind may find a place in the next Public Health Act.

2. The inspection should be repeated after an interval of a year or so, as defective workmanship might stand the test of the first inspection. A clay-jointed pipe might pass muster at first, but the weakness would certainly be revealed in the course of a year.

3. The inspection should afterwards be periodic, as the best workmanship and material cannot be expected to endure forever.

There can be no doubt whatever that the best—indeed, we may say the only—security for work being properly done must consist in the knowledge that it will be submitted to an experimental test before being paid for. In regard to house-drainage, this experimental test should be insisted upon in every instance, not simply to save the proprietor from being defrauded, but to obviate exposure to hidden and unsuspected sources of danger to health and life. Were this condition insisted on, a better class of work would be turned out, and the result would be a lessened sick-rate.

As it is a well-known fact that very few houses are in a satisfactory condition as regards drainage, and that many are in a highly dangerous condition, proprietors of houses, or even tenants, should have their houses inspected. Proprietors of houses can be compelled to rectify conditions of defective drainage when they are proved to exist.

It would be extremely desirable to have legislation on this subject; but, as it is not at all probable that an amended Public Health Act will be passed for some years, those interested in such matters should protect themselves, and probably the best means of doing so, as a temporary measure at all events, would be by the formation of sanitary protection associations, after the plan proposed by Professor Fleeming Jenkin.

The formation of such associations may be objected to on the ground that their operations would interfere with the business of tradesmen who may be quite competent to make such experimental examinations; but, in so far as plumbers and those artificers who undertake the laying of house drains are concerned, the first result would be a very considerable stimulus to trade. No tradesmen can have any vested interest in matters affecting the public health, and no tradesmen who are anxious to turn out first-class work, and who profess to do so, can have any reasonable objection to having their work submitted to an experimental test. Nothing, indeed, could be easier than for a plumber to test his work before his pipes are covered over by boards and plaster, and neglect to do so is all the more inexcusable as it could be then done almost at no expense.—*The Sanitary Journal*.

MONTHLY CHRONICLE.

- JUNE 1. Burning of a poorhouse at Oesthammer, Sweden. Twenty lives lost.
 JUNE 2. Death of Garibaldi.
 JUNE —. Death of John Scott Russell, F. R. S., designer of the

"Great Eastern," and of the iron dome of the Vienna Exhibition building.

JUNE 11. Rising against the Europeans at Alexandria, Egypt.
 Death of Samuel H. Adams, a leading builder of Baltimore, Md.

JUNE 14. A platform over Pogue's Run, Indianapolis, gives way during a flood. Ten persons drowned.

JUNE 16. Gas explosion in the Diamond Mines at Wilkes Barre, Pa. One man killed, eight men injured.

JUNE 17. Fall of a lead-laden floor at 63-65 Centre Street, New York. One man killed.

During a wind-storm the tower of St. Mary's Academy, at Leavenworth, Mo., is blown over onto a dormitory. Four girls killed, twenty injured.

Terribly destructive wind-storm strikes Grinnell, Malcolm, and other parts of central Iowa. Fifty-seven persons killed, three hundred injured.

JUNE 18. Wind-storm strikes Bay City, Mich., doing much damage to buildings and killing several persons.

JUNE 19. Wind-storm does much damage at South Royalton, Vt.

JUNE 21. Cyclonic storms visit parts of Minnesota, northern Iowa, and western Wisconsin.

JUNE 22. Fall of a building at Bloomington, Ill.

Confederate monument at Columbia, S. C., demolished by lightning.

JUNE 23. Tidal wave on Lake Erie at Cleveland. One life lost. Damage \$30,000.

JUNE 24. Wind-storms strike Emmetsburg, Hosper, and Primghar, Io, and Muncie, Ind.

Cyclonic storms visit Nebraska, Illinois, Michigan, and Wisconsin.

JUNE 26. Burning of a boarding-house at Manchester, N. H. Eight persons injured by jumping from the building.

Wind-storm passes over Bangor, Portland, and Lewiston, Me. One life lost.

Cyclonic storms visit Kansas.

JUNE 27. Burning of an insane asylum at Dansville, N. Y.

JUNE 30. Charles J. Guiteau is hung at Washington for the murder of President Garfield.

Destructive wind-storms at Coalville, Pa. Two killed, twenty-five injured.

Heavy wind-storms in central Iowa.

STRENGTH OF PORTLAND CEMENT-MORTARS.

BOSTON, July 3, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT:

Dear Sirs,—Mr. Gustav Grawitz, in his communication in your issue of the 1st inst., quotes a statement of General Q. A. Gillmore, and some experiments made at Dresden, to prove the theory that Portland cement and lime should not be combined to form a mortar for building, in dry situations (as I understand him).

He does not, however, undertake to explain why the tests on brick piers built with bastard and cement mortars, made under my direction, with the finest testing machine in the world, tend to show the theory to be false.

It is true that I tested but one pier of a kind, but as the three piers built with bastard mortars were each stronger than similar piers laid in clear cement and sand, I do not think that the pier built with Portland cement and lime-mortar can be called an exceptional case.

According to the quotation made by Mr. Grawitz from Mr. Kuhn, it appears that the custom of mixing lime with Portland cement is an old one in Germany, and is "still held in some favor."

The experiments quoted would be very interesting indeed, if we had sufficient information concerning them to enable us to draw any conclusions respecting the strength of bastard mortars; but (not having the paper in which they were originally published) we do not know either the age of the specimens, the conditions under which they were allowed to harden, the form of the specimens, and the method of making the tests, or the brands of cement and lime used; hence we do not feel warranted in basing any conclusions upon them.

I should like to know how Mr. Grawitz can claim that the experiments he quoted show that "an addition of sand, when the lime was omitted, increased the value of the mortar." It seems to me that the table very clearly shows just the opposite to be the case.

If it is not advantageous to combine Portland cement and lime in mortars used in dry situations, it is very desirable that the fact should be known, but it seems to me that it will take more facts than have yet been given to prove it.

Very respectfully,

F. E. KIDDER, C. E.

A CORRECTION.

BOSTON, July 5, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Since the publication in your paper of the tests on brown sandstones made under my direction, I have been informed by Mr. O. W. Norcross, of the firm of Norcross Brothers & Taylor, that the specimens of their stone designated in my report as McGregory stone were of the hard Saulsbury variety, as he selected the samples himself.

When preparing my report the foreman of the stone-yard informed me that the specimens were McGregory, which is the reason for my giving them that name.

I will state that the McGregory and hard Saulsbury stones are so much alike that it is very difficult to distinguish between them, even for one used to handling the stone. Respectfully yours,

F. E. KIDDER.

NOTES AND CLIPPINGS.

PUBLIC BUILDINGS.—More public building bills have been passed by this Congress so far than by any preceding Congress. Although the committee on public buildings and grounds of the last House reported favorably over fifty bills of this character, only five became laws. The following tabulated statement shows the various places where public buildings will be constructed, under the laws passed so far by this Congress, the amount appropriated for each, and the amount each will cost:

Name.	Amount appropriated.	Cost not to exceed
Concord, N. H.	\$100,000	\$200,000
Minneapolis, Minn.	63,000	175,000
Frankfort, Ky.	100,000	100,000
Peoria, Ill.	100,000	225,000
Denver, Col.	100,000	300,000
Pensacola, Fla.	200,000	200,000
Jackson, Tenn. ....	.....	50,000
Detroit, Mich. ....	.....	600,000
Lynchburg, Va. ....	.....	100,000
Council Bluffs, Ia. ....	.....	175,000
Quincy, Ill. ....	.....	125,000
Galveston, Tex. ....	.....	100,000
Hanibal, Mo. ....	.....	75,000
Syracuse, N. Y. ....	.....	200,000
Rochester, N. Y. ....	.....	300,000
Louisville, Ky.	200,000	500,000
Columbus, O. ....	.....	250,000
Erie, Pa.	100,000	150,000
Totals	\$960,000	\$3,825,000

A number of the public buildings, for which no appropriation was made in the bills authorizing their construction, will be provided for in the Sundry Civil Appropriation Bill, with sufficient money to purchase sites and begin work upon them this year, so that it is probable that the amount appropriated this session on account of public buildings will amount to at least \$1,500,000. — *Boston Herald.*

CREMATION AND CREMATORIES.—The cremation of Garibaldi, as prescribed in his last will and testament, having again called attention to the cremation question, the *Pull Mall Gazette* remarks: "The report of M. Georges Martin on 'the Proposition Cadet,' submitted to the Municipal Council of Paris contains the latest and most trustworthy information on the subject of cremation. M. Martin agrees with M. Cadet that cremation in a short time will be regarded as the only possible solution of a problem which in great cities is ever increasing in urgency; but he contents himself with proposing that for the present cremation should be rendered optional. The crematory, however, is as yet but in an early stage of development. Under the stimulus of competition it is probable a much nearer approach to perfection may be made than has yet been attained. The regenerative furnace of M. Siemens at Dresden only cost \$250, and is one of the best yet invented. Combustion is effected by heated air, and the process is very rapid. The Brunetti crematory is complicated and slow. It takes four hours to consume a body, and necessitates a consumption of a hundredweight of wood. The most ghastly of all the apparatus of cremation is the Küborn, which is devised for use on the field of battle. In this dreadful machine as many as twelve bodies can be burned at one time, the operation lasting from an hour to an hour and a half. A dozen Küborns, working day and night, could dispose of two thousand five hundred corpses in twenty-four hours. Thirty years ago it was proposed to dispose of bodies by passing them into gas retorts, and since then many inventors have sought to use gas as the agent for reducing them to their elements. The apparatus of MM. Pollini and Clericetti, in which many cremations have taken place, is one of those in which gas is used, much on the principle of the ordinary gas-oven. The process is complete in an hour and a half, and the charge is twenty francs. On an altogether different principle is the crematory of Professor Paolo Gorini, of Lodi. He professes to be able completely to destroy a human body in twenty minutes, at a cost of eight francs, by immersing in a chemical solution heated to a high temperature. The composition of this solution he keeps a strict secret, but chromic acid is believed to be one of its chief ingredients. The best known crematory in Europe is that erected by M. Keller in the cemetery of Milan. In this 'monumental crematory' two bodies can be consumed at a time without producing any odor. The process, which is completed in an hour, can be watched through small glazed openings, and at the close the survivors can carry home with them four or five litres of fine ashes weighing about sixty ounces. The cost varies from fifteen francs to twenty-five francs. The chief objections to cremation are those which are made by those who plead religious principles, and by those who lay stress upon the impossibility of procuring evidence as to poisoning after the victim has been cremated. The first objection is not serious, and in Italy, according to M. Martin, the clergy have already accepted the process, and are now seeking permission to place the funeral urns containing the ashes of the incinerated faithful within the walls of their churches. The difficulty as to poisoning is more important, and it undoubtedly constitutes an objection to the new system. But the cases in which poisoning is discovered by exhumation are few. Only three cases have occurred in Paris in eight years, and in two of them a close examination of the corpse, which would be obligatory before cremation, would have led to its detection. Many poisons are undiscoverable by exhumation, and others, such as arsenic, antimony, lead, etc., can be detected in the ashes of the crematory furnace or in the fumes which are given off in the process. At Milan the presence of arsenic in the ashes of poisoned dogs has been repeatedly discovered; but of course in cases where the surviving relative was the guilty party the ashes would not be allowed to remain for any time in the funeral-urn. On the whole, notwithstanding the pleas urged by its advocates, cremation can hardly fail to increase to a small degree the chances of a poisoner's escape."

AN ODD FINISH.—A new Congregational church at Quadrant, High-bury, England, has its interior timber-work entirely of pitch-pine, the outside left with saw-cut face, without varnish, and covered with Stockholm tar.

THE STORY OF THE CHURCH OF FOLGOET.—The Church of Folgoet is, in truth, a magnificent edifice, but it offers no exception to the rule that in Brittany "the well-known forms of church architecture reappear, but with altered proportions and a peculiar grotesque stamp." It is built of the sharp dark-gray Kersanton stone, much used in Brittany, and the general effect, both without and within, is solemn and impressive. The carving on the western porch, with its delicate wreath of thistles and vine-leaves, and on the larger and more elaborate porch in the south transept, attributed to Anne of Brittany, as well as the sculpture on the jubé, or rood-loft, and the exquisite tracery of the windows, will reward a minute inspection. This long south transept projects like an aisle turned at right angles from the choir, which according to a plan not uncommon in Breton churches, does not extend eastward beyond it. Against the eastern wall stand five altars, three in the transept to the south of the high altar, which is beautifully sculptured in stone. The noble tower and spire at the northwestern end, about 170 feet high,—the southern tower is lower and terminates in a dome,—adds much to the dignity and grace of the building. A basin under an arched niche outside the eastern wall receives the water flowing from the miraculous fountain beneath the high altar, to which pilgrims still resort. At the west end of the nave, on the right of the entrance, is the chapel dedicated to the canonized idiot boy, Salaun, covered with mouldering frescoes. But the leading incidents of his life are depicted in bright colors on the wooden panels of the new pulpit, and the story, which explains how the church came to be built, may be read at length on a board suspended from one of the pillars. It will not be out of place to cite here the main points of a tradition which supplies so striking an illustration of native habits of belief. On the Sunday before All Saints, 1370, died the blessed Salaun or Solomon, commonly called the fool, because he was thought naturally foolish and destitute of reason, never having been able to learn anything but these two words, "Ave Maria," which he would continually repeat. This poor innocent had made himself a wretched abode under a tree with very low branches, which served him for roof and walls, and there he lived by himself, lying on the bare ground. When he was hungry he would go to Lesneven (about a mile off) and ask for bread, saying, "Ave Maria, Salaun a de pre bara,"—which means, "Solomon would faint eat bread,"—and then he returned to his home and dipped his bread in a fountain close by, nor could he ever be induced to eat anything else or to sleep elsewhere. When he was cold in winter he used to climb the tree, and warm himself by swinging backward and forward from the branches, singing in a loud voice, "Oh Maria!" And so, from his simplicity, he came to be called "the fool." The record goes on to tell how, at last, when he died, he was refused Christian burial in consecrated earth, and laid by some peasants under his tree, "like a beast," without the rites of the Church. But the good and merciful God, to whom alone it belongs to judge of the end of all men, whether happy or miserable, made it plain, for the consolation of the poor and simple-minded, that Paradise is not only for those whom the world calls wise and understanding, and that the invocation of His holy mother is indeed a mark of predestination; for on the night after the burial of this innocent, there grew up miraculously from his grave a lily covered with flowers, though it was near winter time, and on the flowers and leaves were seen these words, as it were, traced and graven, "Oh Maria" and "Ave Maria," which remained till the leaves and flowers fell off. And the fame of this marvel brought together an immense multitude of clergy, nobility, and other folk from all quarters, who resolved to build on the site consecrated by so evident a miracle a church in honor of the glorious Virgin, the invocation of whose holy name had proved so effectual. — *The Cornhill Magazine.*

THE SMALL TUN OF HEIDELBERG.—The big tun of Heidelberg is not the biggest tun in the world. According to the *Saaban Mercury*, not only the largest, but the handsomest receptacle of the sort is to be found in the environs of Stuttgart, at Ludwigsburg, the Versailles of Wurtemberg, where it is shown to favored visitors of the palace. The Ludwigsburg tun was made in 1719, of oak and pear-tree wood, by order of Duke Eberhard III, and is ornamented with carvings superior in beauty to those of its Badenese rival, constructed thirty-two years later. Its capacity is 300 Wurtemberg fuders, a liquid measure equal to 338 15 gallons, while that of the Heidelberg tun is set at 245. This would give the Heidelberg tun a capacity of something over 95,000 gallons, whereas Murray states its capacity at 800 hogsheads, or merely 43,200. Its size is 36 feet by 24 (height). The original big tun of Heidelberg was constructed by Michael Warner in 1589-91, of beams 27 feet long, and having a diameter of 18 feet, with 5 1-2 tons of iron hoops, and its capacity was set at 132 fuders, the fuder being called "four English hogsheads," though in reality the Baden fuder is 333.14 gallons, or more than six. It was this tun which Thomas Coryat saw in 1608 and described in his "Crudities."

GOLD FROM THE SOOT OF MINT CHIMNEYS.—That some chimneys are better worth sweeping than others was incontrovertibly proved a few days ago at Berlin by the result of an experiment performed upon some soot with which the inside surface of an old flue, pulled down during the late alterations at the Royal Mint, was found to be thickly caked. This flue had served for many years as an outlet for the smoke given off by the furnaces in which the bullion undergoes fusion before its conversion into coinage, and it occurred to the architect superintending the repairs in question that it might be worth while to analyze the soot lining the chimney through which fumes of boiling gold and silver had passed in such quantities. The liquefaction of the less precious metal requires a temperature of 1,000 degrees Celsius, while that of gold cannot be effected under 1,250 degrees. It is usual to bestrew the surface of these metals, when in a liquid state, with charcoal, in order to hinder evaporation; but at such a fierce heat as that above indicated, some evaporation is bound to take place, and its results were made manifest by the yield of four pounds' weight of pure gold, valued at something under 4,000 marks, obtained from the soot that was scraped off the inside of the melting-room chimney in question. — *London Daily Telegraph.*

BUILDING INTELLIGENCE.

(Reported for The American Architect and Building News.)

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

BUILDING PATENTS.

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

- 260,001. FIRE-ESCAPE.—William H. Burden and Frederick C. Burden, Cleveland, O.
260,005. LATHE-CHECK.—Loring R. Davis, Adrian, Mich.
260,012. VENTILATOR.—John M. Fennerty, Memphis, Tenn.
260,015. PILE FOR USE IN THE CONSTRUCTION OF WHARVES AND OTHER STRUCTURES.—Robert M. Franklin, Galveston, Tex.
260,017. AUTOMATIC SAFETY-STOP FOR ELEVATORS.—Jas. P. Freeman, Chicago, Ill.
260,019. GAUGE FOR SAWING ELLIPSES.—William H. Gordon, and Philip J. Boost, Detroit, Mich.
260,030. FAUCET.—John H. Johnson, Chicago, Ill.
260,036. LOCK-HINGE FOR SHUTTERS.—John P. Maher, Reading, Pa.
260,044. SPRING CURTAIN-ROLLER.—James M. Osgood, Somerville, Mass.
260,045. SPRING CURTAIN-ROLLER.—James M. Osgood, Somerville, Mass.
260,046. STEAM-HEATER.—William H. Page, Norwich, Conn.
260,054. BATH-TUB ATTACHMENT.—Friedrich Schutte, Philadelphia, Pa.
260,097. APPARATUS FOR SUPPLYING STEAM IN CITIES.—Birdell Holly, Lockport, N. Y.
260,135. SCREW-DRIVER.—James Swan, Seymour, Conn.
260,152. MATERIAL FOR THE DECORATION OF THE INTERIOR WALLS AND CEILINGS OF BUILDINGS.—Frederick Beck, New York, N. Y.
260,161. SASH-CORD FASTENER.—Charles Bush, New York, N. Y.
260,184. DRY-KILN.—Edward M. Flaherty, New Baltimore, Mich.
260,192. FIRE-EXTINGUISHING APPARATUS.—Almon M. Granger, Boston, Mass.
260,199. VENTILATING ATTACHMENT TO HEARTHS.—J. E. Howard, Grape Vine, Tex.
260,203. COMPOUND FOR MAKING BRICK, TILE, ETC.—Henry H. Hunt, San Antonio, Tex.
260,213. SASH-HOLDER AND FRAME.—Casper Loewenstein, Columbus, O.
260,217. BASIN-BIB.—Eugene O. McGlaulin, San Jose, Cal.
260,229. FIRE GUARD AND ESCAPE.—John O'Neill, Pakenham, Ontario, Can.
260,232. WATER-CLOSET.—Stewart Peters and William Donald, Glasgow, Scotland.
260,245. FIRE-ESCAPE.—Diedrich Schmidt, New York, N. Y.
260,252. AUTOMATIC FIRE ALARM AND EXTINGUISHER.—Daniel C. Stillson, Somerville, Mass.
260,254. ELEVATOR.—George C. Tewksbury, East Orange, N. J.
260,261. ELEVATOR.—Peter H. Walsh, New York, N. Y.
260,271. SASH-FASTENER.—Ewell B. Attwell, Leesburg, Va.
260,292. MONKEY-WRENCH.—Jonas S. Greenleaf, Fargo, Dak.
260,294. SKYLIGHT.—Conrad Hefe, Baltimore, Md.
260,324. HOISTING APPARATUS.—Walter S. Rockwell, New York, N. Y.
260,331. TENSION-MACHINE.—Jeremiah Shetler, Taylorville, Ill.
260,347. DOOR-KNOB.—John Collins, Newark, N. J.

SUMMARY OF THE WEEK.

Baltimore.

BUILDING PERMITS.—Since our last report eighteen permits have been granted, of which the following are the more important:—

- Geo. W. Braden, three-sty brick building, Tyson Alley, bet. Madison and Richmond Sts.
T. B. Twine, 12 three-sty brick buildings, Franklin St., commencing at the s w cor. of Mount St.
T. B. Twine, 15 three-sty brick buildings, Fulton Ave., commencing at the n w cor. of Tanant St.
Marchant & Reilly, one-sty brick building, 18' x 48' n w cor. Orchard and Tessler Sts.
R. A. Shipley, 2 two-sty brick buildings, Gilmor St., commencing at cor. of Calhoun St.
Betty Adler, two-sty brick building, Register St., bet. Lancaster and Aliceanna Sts.
C. Demling, two-sty brick building, Castle St., bet. Monument and Madison Sts.
Hippolyte Dalmon, 6 three-sty brick buildings, Smith St., bet. Myrtle Ave. and Shields Alley.
Wm. Gesford, 2 two-sty brick buildings, Vincent Alley, s w cor. of Lanvale St.
T. C. Lang, three-sty brick building and two-sty brick stable, s w cor. Light St. and Williamson Alley.

Boston.

- BUILDING PERMITS.**—Wood.—Sherman St., junction of Fred St., Ward 4, for the American Carpet Lining Co., manufactory of black lead, 65' x 78' and 111'; Berry N. Moody, builder.
Albany St., Nos. 760-770, Ward 18, for George Curtis, storage of lumber, 42' x 173'; George Curtis, builder.
Edgewood St., No. 21, for Charles E. Currier, dwell., 22' x 30'; two-sty; Charles E. Currier.
Bird St., near Virginia St., Ward 20, for W. H. Saywood, 2 dwells., 20' x 35'.

- Monadnock St., near Bird St., 5 dwells., 30' x 35', two-sty; W. H. Saywood, builder.
Old Harbor Point, Ward 24, for City of Boston, stone cutter shed, 15' x 150' and 184'; Thomas Keyes, builder.
Wales St., near Howard St., Ward 24, for Charles Newhall, dwell., 15' 4" and 22' 4" x 50' 4", two-sty; Chas. E. Currier, builder.
Brick.—Eastern Ave., near A St., Ward 13, for Boston Wharf Co., storage of wool, 100' x 100', four-sty; W. S. Willbur, builder.
Parker St., rear of, near West Chester Park, Ward 22, for Ham & Carter, storage of building materials, 30' x 50'; G. H. MacKay, builder.
Oliver St., No. 123, Ward 12, for Nathaniel Whiting heirs, dwell. and office, 18' x 28' x 30' 3", two-sty; Rumery & Maxwell, builders.
Hanover St., Nos. 298-302, Ward 6, for John Miller, mercantile, 34' and 36' 6" x 55', four-sty; Donahoe Bros., builders.

Brooklyn.

- BUILDING PERMITS.**—De Kalb Ave., n s, 250' e Evergreen Ave., 5 two-sty frame dwells.; cost, \$1,800 each; owner, S. J. Morehouse, 516 Lexington Ave.; architect and builder, D. B. Morehouse.
Vanderbilt Ave., w s, 236' 6" n De Kalb Ave., two-sty brick stable; cost, \$5,000; owner, Frederick Lemmerman, Clermont Ave., near De Kalb Ave.; architect and carpenter, F. D. Norris; mason, Thos. Dorien.
Schermerhorn St., Nos. 75, 77 & 79, n s, 175' w Boomer Pl., three-sty factory; cost, \$6,000; owner, Rufus Litchfield, 185 Schermerhorn St.; architect, Charles Werner.

- Halsey St., s s, 305' w Stuyvesant Ave., two-sty and basement brick dwell.; cost, \$3,800; owner and builder, John A. Sutton, 707 De Kalb Ave.; architect, J. D. Reynolds.

- Adams St., n s, 106' e Broadway, 5 two-sty frame dwells.; cost, \$2,500 each; owner and builder, Conrad Guthart, 23 Adams St.; architect, Th. Engelhardt.

- Sixth St., n s, 295' e Third Ave., 2 three-sty frame tenements; cost, each, about \$2,500; owner, John Andrews, 89 Second Pl.; architect, W. Wirth; builder, J. R. Greene.

- Kosciusko St., s s, between Throop and Sumner Aves., two-sty brick school; cost, \$23,000; owner, Board of Education; architect, J. W. Naughton; builders, P. J. Carlin and P. F. O'Brien.

- Ninth St., n s, 58' w Sixth Ave., three-sty brownstone dwell.; cost, \$1,000; owner, John Fey, 189 Twelfth St.; architect, F. Ryan.

- Raymond St., e s, between Hanson Pl. and Lafayette Ave., one-sty brick stable; cost, \$2,500; owner, E. Waters, on premises; architect, G. W. Anderson; mason, J. D. Anderson.

- Washington Ave., w s, 325' s Greene Ave., 2 three-and-a-half-sty brick dwells.; cost, each, \$11,000; owner and carpenter, D. H. Fowler, 14 Verona Pl.; architects, A. Hill and Thos. Baker.

- North Sixth St., n s, 125' w Sixth St., four-sty frame tenement; cost, \$5,000; owner, John Costello, 207 North Sixth St.; architects, Cardwell & Hawkins.

- ALTERATIONS.**—Gates Ave., n s, between Clason Ave. and Franklin Ave., 2 one-sty brick extensions; cost, \$7,500; owner, Church of the Reformation, on premises; architect, John Mumford; builders, J. H. Stevenson and H. J. Smith.

- Pierrepont St., cor. Columbia Heights, alter pitch of roof, interior alterations, stairs, etc.; one-sty brick extension; cost, \$10,000; owner, Seth Low, 112 Willow St.; architects, Parfitt Bros.; builders, W. & T. Lamb, Jr., and Martin & Lee.

- Schermerhorn St., No. 192, cor. Hoyt St., two-sty brick extension, etc.; cost, \$5,000; owner, Mrs. J. H. Recknagel, on premises; architect, A. F. O'dench; builders, J. H. Stevenson and Morris & Selover.

- Broadway, s w cor. Thornton St., raised 3', also one-sty frame extension, fronts rebuilt, etc.; cost, \$3,000; owner, E. Michaelis, on premises; architect, E. Dennis; builders, B. J. Dennis & Son.

Chicago.

- HOUSES.**—J. V. Farwell will build on Lake Shore Drive, n of Chicago Water-Works, 65' x 80', brownstone on all sides; Burnham & Root, architects. They have also in hand plans for a residence on Michigan Ave., near Twenty-ninth St., for Mr. Sidney Kent, of pressed brick.

- BOARD OF TRADE BUILDING.**—The contracts have been let for the foundations for the new Board of Trade Building to E. Starvarent.

- BUILDING PERMITS.**—A. Wygant, two-sty brick dwell., 20' x 10', 537 West Jackson St.; cost, \$8,000.
John Meyer, two-sty brick dwell., 22' x 60', 460 Congress St.; cost, \$5,000.

- Charles L. Willoughby, three-sty and basement brick dwell., 38' x 48', 292 and 293 Michigan Ave.; cost, \$18,000.

- Daniel Burke, 4 two-sty and basement brick dwells., 2233 to 2239 Wentworth Ave.; cost, \$15,000.
Marshall Field, one-sty brick store, 60' x 163', 772 and 778 Wabash Ave.; cost, \$8,000.

- Frank Grundes, two-sty and basement brick dwell., 23' x 60', 43 North Ada St.; cost, \$3,000; H. Van Pelt, architect.

- P. H. McDonald, two-sty and basement brick dwell., 20' x 47', 214 East Illinois St.; cost, \$4,000.
F. Leeper, two-sty and basement brick dwell., 24' x 62', 817 West Twenty-second St.; cost, \$5,000.

- Rev. F. Suebert, three-sty and basement brick dwell., 42' x 42', Market St., near Hill St.; cost, \$8,000.

- John Wilkie, two-sty and basement brick dwell., 21' x 12', 3753 Butterfield St.; cost, \$2,500.
Jos. Halorka, one-sty brick cottage, 20' x 50', 92 Johnson St.; cost, \$2,500.

- Wm. Andres, two-sty and basement brick dwell.; 37' x 40', 3803 and 3805 Lake Ave.; cost, \$5,000.
J. E. Lindley, three-sty and basement brick dwell., 44' x 70', 2635 and 2637 Michigan Ave.; cost, \$16,500.

- P. J. Blake, two-sty brick dwell., 22' x 50', 137 Superior St.; cost, \$3,000.

- L. Hodges, four-sty and basement brick store and dwell., 30' x 60', 2133 Indiana Ave.; cost, \$10,000.

- Mrs. M. T. Nixon, three-sty and basement brick flats, 22' x 80', 261 Illinois St.; cost, \$6,000.

- Anton Dasletski, two-sty and attic brick dwell., 23' x 54', 165 Centre St.; cost, \$3,300.

- E. B. Sheldon, two-sty brick dwell., 20' x 38', 18 Lincoln Ave.; cost, \$5,500.

- Mrs. A. Johnson, three-sty brick dwell., 40' x 49', 655 Robey St.; cost, \$7,000.

- Wm. P. Allgum, two-sty and basement brick dwell., 20' x 50', 698 East Division St.; cost, \$4,500.

- St. Mark's Episcopal Church, one-sty brick addition to church, 33' x 50', Cottage Grove Ave. and Prospect St.; cost, \$5,000.

- W. Meyer, two-sty and basement brick dwell., 21' x 53', 334 West Huron St.; cost, \$3,000.

- H. H. Berven, two-sty brick flats, 25' x 60', 3556 Forest Ave.; cost, \$5,000.

- H. Licht, two-sty and basement brick store and dwell., 24' x 75', 644 Centre Ave.; cost, \$4,000.

- Joseph Charnley, two-sty brick dwell., 43' x 48', on Division St. and Lake Shore; cost, \$9,000.

Cincinnati.

- BUILDING PERMITS.**—Since the last report the following building permits have been issued:—
Val Roth, two-sty brick dwell., Pleasant St., bet. Fifth and Liberty Sts.; cost, \$3,500.

- David Sinton, to alter and repair the Grand Opera House; cost, \$20,000.

- Henry Kester, addition to four-sty dwell., Elm St., near Pearl St.; cost, \$5,000.

- Phillip Le Saint, two-sty brick dwell., Elm St., near Third St.; cost, \$4,000.

- H. Ennebeck, three-sty brick dwell., 139 Bamm St.; cost, \$5,000.

- Cincinnati Corrugating Co., two-sty brick, Culvert St., near Eighth St.; cost, \$3,000.

- Five permits for repairs; cost, \$1,400.

New York.

- CHURCH.**—The laying of the corner-stone of the Baptist Church of the Epiphany, at Madison Ave. and Sixty-fourth St., took place June 27. After a prayer by the Rev. Lemuel Corvill, the pastor, the Rev. Dr. Joseph F. Elder made an historical address. The church is to extend 132' in Sixty-fourth St. and 80' in Madison Ave., having a seating capacity of 1,000. It is estimated to cost \$212,000.

- BUILDING PERMITS.**—Stanton St., n e cor. Willett St., five and one-sty brick store and tenement; cost, \$22,500; owner, estate of P. Dater, P. Dater, Jr., exr., Cheyenne, Wyoming Territory; attorney, J. B. Greenman, Room 52, Bible House; architect, W. Jose.

- Madison Ave., One Hundred and Twenty-ninth and One Hundred and Thirtieth Sts., begins One Hundred and Twenty-ninth St., n e cor. Madison Ave., one-sty stone basement for church; cost, \$3,400; owner, All Saints Church, One Hundred and Thirtieth St. and Madison Ave.; architect, James Kenwick; builders, Giblin & Lyons and P. Walsh.

- Fortieth St., s s, 125' e Eleventh Ave., four-sty brick tenement; cost, \$10,000; owner, Andrew Ewald, 432 West Fifty-first St.; architects, Thom & Wilson.

- One Hundred and Twenty-sixth St., s s, 135' e Third Ave., five-sty brownstone apartment-house; cost, \$20,000; owner and builder, Stephen J. Wright, 201 West One Hundred and Thirtieth St.; architects, Thom & Wilson.

- Eighty-third St., w s, 100' e Madison Ave., 4 five-sty brownstone dwells.; cost, \$15,000; owner, James McManus, 232 East Eighty-third St.; architect, Fr. S. Barus.

- Eagle Ave., s e cor. Cedar St., Melrose (One Hundred and Fifty-eighth St.), two-sty frame dwell.; cost, \$2,500; owner, Herman Weissker, Eagle Ave., near Cedar St.; architect and carpenter, Henry Piering; mason, Adam Kaiser.

- St. Ann's Ave., e s, 100' s John St., 2 two-sty frame dwells.; cost, each, \$4,000; owner, Philip Ebling, One Hundred and Fifty-sixth St. and St. Ann's Ave.; architect, Henry Piering; builder, Adam Kaiser.

- Water St., n e cor. Broad St., four-sty brick store and tenement; cost, \$13,000; owner, B. C. Gaideker, 1859 Second Ave.; architect, Henry Piering.

- Sixty-first St., n s, about 68' e Tenth Ave., one-sty brick maternity for New York Infant Asylum; cost, \$2,100; owners, Trustees New York Infant Asylum, 7 West Thirty-ninth St.; architect, J. E. Terhune.

- Thirteenth Ave., n e cor. Bank St., five-sty factory; cost, \$50,000; owner, Mrs. G. R. Hoffman, 4 Warren St.; architect, John B. Snook; builders, Benj. Blackledge and David Hepburn.

- Leonard St., No. 134, four-sty brick warehouse; cost, \$10,000; owner, Catharine A. Cammann, 19 East Thirty-third St.; H. H. Cammann, agent, 4 Pine St.; architects, O. P. & R. F. Hatfield.

- Stanton St., No. 226, three-sty brick dwell.; cost, \$14,000; owner, Jeannette Gunther, 228 Stanton St.; architect, Edward Kenny; builders, John Fish and Timothy Wallis.

- East Forty-seventh St., No. 216, five-sty brick tenement; cost, \$9,000; owners, Peter McCormack and James J. Dunne, 164 East One Hundred and Twenty-eighth St.; architect, A. Spence; builders, McCormack & Dunne.

- East Forty-seventh St., No. 218, five-sty brick tenement; cost, \$12,000; owner, architect and builder, same as last.

- West Twenty-ninth St., No. 540, five-sty brick tenement; cost, \$11,000; owner, architect and builder, same as last.

- Battery Pl., extending from Broadway to Greenwich St., eleven-sty brick and Belleville stone offices; cost, \$900,000; owner, Washington Building Co., New York, 120 Broadway; architect, Edward H. Kendall; masons, W. H. Hazzard & Son; iron, J. B. & J. M. Cornell.

- Lexington Ave., n w cor. Eighty-second St., 2 four-sty brick dwells.; cost, \$5,000 each; owner, E. Emmett, Connecticut.

- Mercer St., No. 185, six-sty brick store and factory; cost, \$35,000; owner, E. P. Gleason, 171 Remsen St., Brooklyn.

- Thompson St., No. 15, rear, four-sty brick paintshop; cost, \$3,000; owner, Nicholas Serf, 15 Thompson St.; architect, Wm. Graul.

- Ave. A, e s, from Twenty-third to Twenty-fourth St., one-sty frame ferry-house; cost, \$20,000; owner, Greenpoint Ferry Co., Greenpoint, Brooklyn, E. D.; architect, John McIntyre.

Rivington St., No. 265, five-sty brick tenement; cost, \$10,000; owner, Louis Bottiger, 64 Pitt St.; architect, Julius Bockell.

Ninth Ave., No. 320, e. s. 98' 9" x Twenty-ninth St., two-sty brick stable and dwell.; cost, \$5,000; owner, Nathaniel E. Bayliss, 363 West Twenty-eighth St.; architects, Hamilton & Pistor.

One Hundred and Twenty-first St., s. s. 289' w Ave. A, 2 four-sty brownstone tenements; cost, \$9,500 each; owner, Joseph Dillon, 71 West Forty-eighth St.; architect, John Sexton.

East One Hundred and Fourteenth St., No. 326, four-sty brick tenement; cost, \$9,000; owner, Mrs. Sarah Amor, on premises; architect, John McIntyre; builder, G. J. Fernchlid.

Eighty-second St., s. s. 60' w Second Ave., three-sty Connecticut brownstone dwell.; cost, \$10,000; owner, Christian Briel, 246 East Eighty-second St.; architect, John McIntyre.

One Hundred and Nineteenth St., n. s. 20' w Lexington Ave., 4 four-sty brick tenements; cost, \$9,000 each; owner, Enoch C. Bell, 123 East One Hundred and Fourteenth St.; architect and mason, T. Fealey.

East Eighteenth St., Nos. 513, 515, 517 and 519, one-sty brick machine shop; cost, \$4,000; owners, New York Steam Co., W. C. Andrews, President, 16 Cortlandt St.; engineer and architect, Chas. E. Emery.

One Hundred and Eighth St., n. s. 105' e Fourth Ave., 5 four-sty brick tenements; cost, each, \$13,000; owner, Michael Duffy, 156 East One Hundred and Second St.; architect, Andrew Spence.

East Thirtieth St., No. 3, rear, two-sty brick work-shop; cost, \$2,900; owner, Margaret Eagan, 3 East Thirtieth St.; builder, R. H. Casey.

Stanton St., n. s. 25' e Willett St., five-sty brick and brownstone tenement, cost, \$17,500; owner and carpenter, same as last.

Third Ave., n. w. cor. One Hundred and Thirty-ninth St., three-sty brick store and dwell.; cost, \$4,500; owner, Philippina Brown, one Hundred and Thirty-ninth St. and Third Ave.; architect, J. F. Burrows.

One Hundred and Forty-seventh St., s. s. 150' w St. Ann's Ave., two-sty frame dwell.; cost, \$2,200; owner, Edward Beizig, St. Ann's Ave., One Hundred and Forty-ninth St.; architect and builder, Henry Pioring.

Lexington Ave., s. e. cor. One Hundred and Twelfth St., 5 five-sty brick tenements; cost, corner, \$16,000; others, each, \$24,000; owners, Thomas Smith and John Bannan, 145 East One Hundred and Eleventh St.; architects, Babcock & McAvoy.

Broadway, n. w. cor. Eighty-eighth St., 3 three-sty brick stores and dwell.; cost, about \$3,000 each; owner and architect, Christian Blinn, Ninth Ave., n. w. cor. Seventy-ninth St.

West Thirty-ninth St., No. 519, two-sty brick dwell.; cost, \$3,200; owner, George Blinks, on premises; architect, C. F. Ridder, Jr.

One Hundred and Forty-second St., s. s. 90' w Brook Ave., 9 two-sty brick dwell.; cost, each, \$4,000; owner, Julia O'Gorman, Willis Ave. and One Hundred and Thirty-eighth St.; architect and builder, Wm. O'Gorman.

Second Ave., e. s. 75' 7" x One Hundred and Eighteenth St., four-sty brownstone store and tenement; cost, \$12,500; owner, Thomas Dunn, First Ave., e. s. between One Hundred and Fifth and One Hundred and Sixth Sts.; architect, F. T. Camp.

Fifth Ave., s. e. cor. Seventy-fourth St., four-sty brick and brownstone dwell.; cost, \$250,000; owner, Wilhelm Pickhardt, 735 Madison Ave.; architect, H. G. Harrison; mason, Thos. Dobbins.

Fifth Ave., s. e. cor. Sixty-sixth St., 2 four-sty brick and stone dwell.; cost, \$50,000 and \$80,000; owner, Andrew J. White, 24 East Sixty-seventh St.; architect, J. E. Ware; builders, Sinclair & Wells.

West Twenty-seventh St., Nos. 39 to 45, ten-sty brick and brownstone apartment-house and restaurant; cost, \$180,000; owner, Louis L. Todd, 17 West Twenty-sixth St.; architect, A. Hatfield; builder, Hugh Getty.

Seventy-sixth St., s. s. 300' w Ave. A, 2 five-sty brick tenements; cost, \$5,000; owner, Eva Muller, Seventy-sixth St., East River; architect, John Brandt.

Ninety-second St., s. e. cor. Ninth Ave., 4 five-sty brick and brownstone flats; cost, corner, \$40,000; others, each, \$16,500; owner, John D. Crimmins, 40 East Sixty-eighth St.; architects, D. & J. Jardine.

One Hundred and Twenty-sixth St., s. s. 100' e Ninth Ave., 4 four-sty brick tenements; cost, each, \$10,500; owner, W. K. Foster, 760 Lafayette Ave., Brooklyn; architect, S. M. Styles.

West Fiftieth St., No. 531, four-sty brick tenement; cost, \$8,000; owner, Jacob Schneider, 411 West Fiftieth St.; architect, J. M. Forster.

Fiftieth St., No. 537, rear, three-sty brick factory; cost, \$5,000; owner and architect, same as last.

One Hundred and Fifty-second St., n. s. 615' w Eleventh Ave., two-sty frame dwell.; cost, \$3,500; owner, James Britt, One Hundred and Fiftieth St., near St. Nicholas Ave.; architects, D. & J. Jardine.

Fourth Ave., s. w. cor. Fiftieth St., six-sty brick and Potsdam stone college; cost, \$100,000; owners, Trustees Columbia College, 5 Church St.; architect, Charles C. Haight; mason, J. Bogert; carpenter, not selected.

Ninth Ave., n. e. cor. Seventy-third St., five-sty brick and Nova Scotia stone tenement; cost, \$35,000; owner, Edward Clark, 34 Union Sq.; architect, H. J. Hardenbergh; builder, John Banta.

Seventy-third St., n. s. 30' e Ninth Ave., 19 four-sty brick and stone dwell.; cost, each, about \$15,000; owner, architect and builder, same as last.

Seventy-third St., n. s. 420' e Ninth Ave., 8 four-sty brick and Nova Scotia stone dwell.; cost, each, \$18,000; owner, architect and builder, same as last.

Alexander Ave., between One Hundred and Thirty-fourth St. and Southern Boulevard, and 331' on Southern Boulevard, 24 four-sty brick and free-stone stores and tenements; cost, each, \$8,500; owner, Henry C. Thompson, 1684 Lexington Ave.; architect, Wm. Baker.

Eighty-sixth St., n. s. 75' e Ave. A, four-sty brick apartment-house; cost, \$15,000; owner, Charles E. Hall, 520 East Twentieth St.; architect, John C. Burne.

East One Hundred and Ninth St., Nos. 314 and 316, 2 four-sty brick tenements; cost, each, \$9,000; owner and builder, Joseph Handwerk, 174 East One Hundred and Twelfth St.; architect, Bart. Walther.

Fifty-ninth St., n. s. 230' w Ninth Ave., 7 five-sty brownstone flats; cost, each, \$16,000; owner, R. H. Treacy, 1716 Madison Ave.; architect, R. Rosenstock.

Seventy-first St., s. s. 72' w Second Ave., five-sty Connecticut brownstone tenement; cost, \$16,000; owner, John Livingston, 931 Lexington Ave.; architect, F. T. Camp.

ALTERATIONS. — West Fifteenth St., No. 313, three-sty brick extension; cost, \$3,500; owner and builder, Lewis H. Williams, 330 West Nineteenth St.; architect, D. Llanan.

West Sixty-third St., No. 408, two-sty brick extension and interior alterations; cost, \$2,000; owner, architect and builder, William Johnson, on premises.

East Nineteenth St., No. 37, one-sty iron and brick extension, whole rear of main rebuilt; cost, \$10,000; owner, Alfred Bridgeman, 876 Broadway; architect, Paul Beck; builders, A. Woodruff's Sons and John Downey.

East Tenth St., No. 210, raised one sty, also five-sty brick extension, altered for apartment-house; cost, \$16,500; owner, Mrs. Fannie J. Stuyvesant, 46 West Thirty-seventh St.; architect, S. D. Hatch; builders, John Askey and A. Gibbins.

West Fifty-fifth St., No. 114, two-sty brick extension; cost, \$2,000; attorney for owner, John Drake, 79 Cedar St.; architect, W. E. Bloodgood; builders, F. Bloodgood and J. C. Doremus.

Third Ave., No. 399, cor. Twenty-eighth St., two-sty brick extension, interior alterations; cost, \$3,500; lessee, S. A. Thompson, 278 Third Ave.; builders, Brice & Hunter.

Baxter St., No. 44 rear, one-sty brick extension; cost, \$2,000; owner, Annie Cohn, 206 East Broadway; architect and builder, W. Powers.

West Forty-third St., Nos. 251, 253 and 255, two-sty brick extensions; cost, \$2,200; owners, Forty-third-street Methodist Episcopal Church; D. Teets, President, on premises.

North Washington Sq., No. 22, raise extension one sty, interior alterations; cost, \$12,000; owner, Mrs. Louisa Minturn, Elberon, N. J.; architect, Jas. Renwick; builders, J. J. Tucker and Edward Gridley.

West Fiftieth St., No. 24, two-sty brick extension, etc.; cost, \$3,000; owner, Mrs. R. P. Herrick, on premises; builders, P. Canfield and McKenny & Scarrford.

Liberty St., Nos. 28 to 36, raised one sty; cost, about \$7,000; owner, Frederick J. Stone, 55 Liberty St.; architect, J. Renwick; builders, F. Lyon's Son and E. Gridley.

Eagle Ave., n. e. cor. One Hundred and Sixty-first St., raised 3' 6", interior alterations; cost, \$2,500; owner, Robert Clark, One Hundred and Sixtieth St. and Eagle Ave.; architects and builders, P. Garvin & Son.

Madison Ave., n. e. cor. Thirty-fifth St., church, repair damage by fire, interior alterations; cost, \$80,000; owner, John L. Riker, Vestryman Church of Incarnation, 19 West Fifty-seventh St.; architects, D. & J. Jardine; builder, E. Smith.

Fourth Ave., n. s. 121' 8" x Fiftieth St., raise two stories; part of front and rear walls rebuilt, etc.; cost, \$30,000; owners, Trustees Columbia College, 5 Church St.; architect, C. C. Haight; mason, J. Bogert; carpenter, not selected.

East Forty-fifth St., No. 17, three-sty brick extension; cost, \$3,000; owner, Robert A. Chesebrough, on premises; architect, W. Kuhles; builder, F. Schaeffler.

West Fifty-fourth St., No. 40, two-sty brick extension; cost, \$2,500; owner, Clara Brice, 40 West Fifty-fourth St.; architects, D. & J. Jardine.

(Continued on page xv.)

PROPOSALS.

ELEVATORS.

[At Cincinnati, O.]

AUDITOR'S OFFICE,
HAMILTON COUNTY, OHIO,
CINCINNATI, June 17, 1882.

Sealed proposals will be received at the office of the County Commissioner of Hamilton County until 12 o'clock, July 12, 1882, for the building of two passenger elevators in the court-house, as per general specifications on file in the office of the County Commissioners; also, bids for the building of two towers to receive said elevators, according to plans and specifications on file in said Commissioners' office.

Bids for said elevators and towers may be joint or separate, and all bids for elevators must be accompanied with full drawings, plans and specifications, and must designate the safety attachment that will be used on the elevators proposed.

The work to be completed within ninety days from the date of contract.

The right to reject any or all bids is reserved.

W. S. CAPPELLER,
County Auditor.

RAILWAY SHOPS.

[At South Chicago, Ill.]

OFFICE OF CHIEF ENGINEER NEW YORK, CHICAGO AND ST. LOUIS RAILWAY,
CLEVELAND, O., June 26, 1882.

Sealed proposals will be received at the office of J. A. Latcha, Chief Engineer, directed to the New York, Chicago & St. Louis Railway, until 12 o'clock, noon, Wednesday, July 12, 1882, for furnishing all material and performing all labor necessary for constructing the general shops of this company at South Chicago.

Plans and specifications for said work will be on file at Room 55, Metropolitan Block, Chicago, Ill., on and after Monday, July 3, 1882.

Each proposal must contain the full name of the party or parties making the same.

The New York, Chicago & St. Louis Railway Company reserve the right to reject any or all bids.

J. A. LATCHA,
Chief Engineer N. Y., C. & St. L. Ry.

PROPOSALS.

INSANE ASYLUM.

[At Columbus, O.]

Sealed proposals will be received by the Trustees of the Ohio Institution for the Feeble-minded Youth, at the office of the Superintendent, at Columbus, Ohio, until Monday, July 31, 1882, at 12 o'clock, for work and material required for the construction of the central building and wings of that institution. Proposals will be received:—

For all brick.
For all cement.
For laying all bricks in the walls, including those now on hand from the burnt building.
For all cut-stone work, including setting of all cut stones saved from the burnt building.
For all carpenter-work and material.
For all slate, tin and galvanized iron-work.
For all plastering necessary, and wire or iron lathing.
For all concrete work.
For all painting and glazing.
For all iron-work, such as beams, roofing, etc., delivered upon the ground ready to put up.
For putting all iron-work complete upon the buildings.

For all corrugated-iron arches, brick and hollow tile arches between floor-beams.
For all iron stairs, iron division doors, etc.
For all gas-fittings and material.
For all material and labor of plumbing.
For all material and labor of steam-fitting.
Bidders are required to bid also for all material remaining of the burnt buildings suitable for use in rebuilding them, viz.: brick and cut stone and material for concrete.

Plans, specifications and detailed drawings can be seen at the office of the Superintendent at the Institution.

All proposals will be directed to Hon. John A. Shank, President of the Board of Trustees, and endorsed proposals for stating kind of work or material proposed for.

The Board reserves the right to reject any or all proposals.

JOHN A. SHANK,
JOHN M. HOLMES,
M. A. DAUGHERTY, } Trustees.
J. K. RUKENBROD,
B. B. WOODBURY,

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WATER-WORKS.

[At Northboro, Mass.]

Proposals for furnishing, laying and setting water-pipes, special castings, gates and hydrants for the Northboro Water-Works, will be received by the Water Commissioners until Thursday, July 13, 1882, noon. Specifications and blanks can be obtained by addressing

CYRUS POTTER,
Pres. Board of Water Commissioners,
Northboro, Mass.

PERCY M. BLAKE, Engineer.

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IRON STAIRWAY.

[At New York, N. Y.]

Sealed proposals will be received by the School Trustees of the Eighth Ward at the hall of the Board of Education until July 10, 1882, for an iron stairway for Primary School Building, No. 25. For full information see *City Record*, for sale at No. 2 City Hall.

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WATER-WORKS.

[At Fremont, O.]

FREMONT, June 22, 1882.

Sealed proposals will be received by the Trustees of Water-works of the City of Fremont, O., at their office in said city until 12 o'clock, noon, of Tuesday, the 25th day of July, 1882, for furnishing on board cars in Fremont approximately:

3,400 lineal feet of 16-inch pipe,	12
5,600 " " 10 " "	10
4,600 " " 12 " "	10
5,600 " " 8 " "	10
26,700 " " 6 " "	10
10,200 " " 4 " "	10
1,400 tons.	

Also, 18 tons of special castings.
Also, for furnishing lead and gaskets and laying said pipe, including trenching and back-filling, setting hydrants and valves, including the furnishing and setting valve-boxes, vaults and covers.

Also, for furnishing ninety-five hydrants.
Also, for furnishing valves as follows: Three 16-inch; three 12-inch; five 10-inch; eight 8-inch; forty-five 6-inch, and twenty-seven 4-inch valves.

Also, for furnishing materials and erecting one metallic stand-pipe, 25 feet diameter and 100 feet high, including foundation for same.

Also, for pumping machinery, as follows: One compound or condensing engine of capacity to pump 2,000,000 gallons of water in 24 hours against 225 feet head, and one non-condensing engine of 1,000,000 gallons capacity under like conditions, including engine foundations.

Also, two return tabular boilers approximately 5 feet 5 inches diameter, 16 feet long, including foundations, settings and connections.

Also, one brick building, to be sub-divided into an engine-room about 40' x 40' and boiler-room of same dimensions, together with coal-room, tool-room and office-room, as per detailed drawings.

Also, one brick smoke-stack, 100 feet high.

Detailed drawings for above work can be seen at the Trustees' office from and after July 10, from and after which date also specifications, forms of contracts and proposals will be furnished by the Trustees.

The Trustees reserve the right to reject any or all bids.

WM. F. HAYNES, } Trustees of
C. F. REIFF, } Fremont
F. FABING. } Water-Works.

J. D. COOK, Toledo, O., Consulting Engineer.