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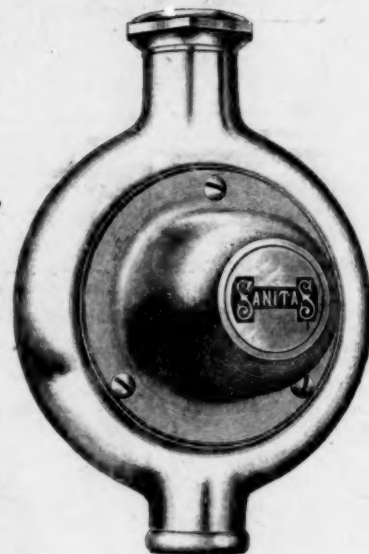
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DECEMBER 13, 1890.



SUMMARY:—

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WE cannot forbear laying before our readers a little tabulation, which we have just made, because we believe it will not only interest and surprise them but also because it admirably shows how great a benefit an individual can obtain from a pooling system or, as we expressed it a week or two ago, by making some individual in whom the contributors have confidence the trustee of a large sum to be employed for the general good of all payees. In the case of the *American Architect*, a comparison of the output with the return makes the following exhibit:—

	Text.	Plate.	Total pp.	Cost.	Cost per page.
Regular Edition	816	312	1128	\$ 6.00	\$0.0053
Imperial Edition	816	436	1252	10.00	0.0079
International Edition	816	941	1757	25.00	0.0142

[In the list, plates are computed as the equivalent of single-page illustrations, and "extras" of all kinds are excluded. It should also be noted that this merely numerical statement can give no indication of the great difference in the quality of the plates in the several editions, nor suggest the difference in manufacturing cost.]

From this it appears that the International subscriber procured the double-page etching of the Hôtel at Compiègne in our last issue for *two and eight tenths cents!* while he would probably have called it a red-letter day if, in some Paris book-stall, he had picked up a soiled print of it for a franc and a half. Think of the fact that photographs of equivalent merit with the gelatine prints in the Imperial edition cost in Paris, and by the dozen, a franc and a half apiece, while our imperishable prints are furnished at less than eight-tenths of a cent each! If any reader who subscribes to any other American architectural journal will apply the same method of computing returns to such journal, he will find the result interesting and surprising too—but in a different sense. We have been through the list and are satisfied with the discoveries we have made.

MORE than four years ago it occurred to us that we could increase our usefulness to the profession at large by establishing a drawing-office for the making of perspective drawings in line and color. The amount of work that has been done by our draughtsmen during this period is proof that we did not misjudge the value to architects of the assurance that there was one place, at least, where they could have this class of work done in a prompt and satisfactory manner. Work has been sent to us from nearly every State in the Union and by

the same architects over and over again. Proof this that the drawing-office is useful, its work satisfactory and its charges reasonable. As to charges, we find that quite as many clients express surprise that we can do so good work for so little money as decide not to send us their work because our charges are so high. All it seems necessary to say as to our charges is that balancing one set of opinions against the other the conclusion seems fair that our prices are really, as we intend them to be, reasonable. Nevertheless it is true that the income from this branch of our business does not cover the expense we are at to maintain it. Why then do we maintain it? For several reasons. First, because it is our aim to make the *American Architect* of as much use as possible to the profession; next, because it enables us to employ and train a number of draughtsmen who have natural abilities for this special kind of work and who would achieve less success at the office drawing-board; and, last, because the shortage grows less every year and stimulates the hope that at length the balance will appear on the right side of the account.

OUR object in speaking of the drawing-office at this time is less to suggest that architects could easily convert what has been "a labor of love," hitherto, into a commercial success by sending us a greater amount of their work, than to draw attention to several points of procedure which may easily be improved. Our advertisements all invite architects to address themselves to the editors, not to the individual draughtsman they hope may be entrusted with the work. Observance of this request is no less desirable in this than in the case of any other business where all the work is laid out by the head of such establishment who has to bear the responsibility of failure when that occurs. Moreover, a draughtsman may have left our employ or may be absent and his private correspondence cannot, of course, be investigated. Almost every day we receive inquiries as to the price of a perspective drawing described as, say, "18 by 40," or "an eight-story office-building," or "a church 105' by 62'." Now, how can any one conscientiously answer such questions as these? The office-building may have one hundred square-headed windows or it may have four hundred round-arched windows; it may be plain or may be covered with carved detail. The church may be a fairly plain structure or it may bristle with dormers and crockets and flower with intricate tracery in the windows. When we are forced to answer such questions, we always answer with a "guess" which includes a certain factor-of-safety—which we usually find has been quite too small. The only way that is fair to the client and fair to us is to send drawings or tracings which can be used for making a proper estimate. The greater part of our work is based on such actual estimates. But if architects cannot spare drawings, tracings or blue prints they might seek protection from our factor-of-safety by stating whether the plan is simple or broken; the ornamental detail sparse or exuberant, the windows square or round and so on; even the number of openings would give some hint as to the probable amount of work to be done, or better still they might refer to some published drawing which fairly represent an equivalent amount of work. In case of water-color drawings it would be a help to receive samples of the materials used. One point which is invariably forgotten is the furnishing of a description of the surroundings of the proposed building; where possible, photographs or sketches of adjacent buildings should be furnished. In one particular we are needlessly put at a disadvantage. An architect asks whether we can make a certain drawing and deliver it by a stated time and our price for the work. We reply stating price and pledging ourselves to deliver the work as agreed and there the matter halts. Shortly after other architects make similar applications which we have to answer at our own risk, as the first applicant leaves us in uncertainty whether he intends to accept our offer to him. This is not quite fair-play and as postal-cards are so inexpensive it seems as if we might receive prompt notification that the offer is either accepted or declined.

THE "Prize of Gratitude," founded in the architectural section of the Paris School of Fine Arts by the American architects who have studied there, or who have in other ways benefited by the school, although highly appreciated as

a compliment by the French students, to whom its benefits are exclusively confined, is not, in practice, much sought after. The value of the prize, which is given in money, is two hundred dollars or more, but last year it was competed for by only nine students, and this year it was taken by M. Bauhain, who made a very clever design, although, as it appears, he might have spared himself a part of his trouble, as he had only one competitor, M. Deputhes, who hardly entered seriously into the contest. It is natural enough that the Americans, who pleased themselves so much with their plan for showing their French instructors and friends how highly they appreciated their kindness, should be disappointed at this result; but, as a correspondent of *La Construction Moderne* points out, the American "concours" has simply shared the fate of many other contests founded in the school, in which the prize consists of money simply. Although two hundred dollars seems a larger sum to a French student than it would to the average American college undergraduate, the Frenchman has something else than cash to look for. Under the system pursued in the school, advancement from class to class is to be had only by the accumulation of *valeurs*. These *valeurs* consist of honorable mentions in the regular school "concours," and medals, which count for various amounts of *valeurs*, according to their importance. A certain number of these credits, which are, of course, recorded for each student, entitles the person who has won them to pass onward into the next class, and he cannot pass from one class to another without them. For this reason, the man who wishes to advance rapidly through the school, and either try for the Prize of Rome or for a diploma, or to begin the practice of his profession, thinks every moment lost that does not tend to bring him in more *valeurs*; and as the "concours des Americains," like most of those for a money prize, does not carry with it any official medals, or honorable mentions, nearly all the students look upon it as a distraction from their regular business of getting *valeurs*, which is best avoided.

WHAT this is the true explanation of the general desertion of all the contests for money prizes alone in the School of Fine Arts is shown by the fact that the Rougevin Prize, given for the best study of decoration, was, until recently, awarded "*hors classe*," carrying no *valeurs* with it. Under this arrangement, although the gaining of the Rougevin prize, in a special field, was highly honorable, as well as profitable, the competitors were usually men from the first class, who had passed to the highest rank and were trying for the Prize of Rome. In the intervals between the Grand Prize competitions, these students, who had nothing further to gain in school honors, could with advantage to themselves study a decorative subject, and found that the Rougevin concours afforded an excellent opportunity for doing so. The number of competitors of this sort was, however, small, and, not long ago, the school authorities concluded to adopt the Rougevin competition as a "concours scolaire," and to award, in connection with it, not only the money prizes given by its founder, but official medals and honorable mentions. Since this change was made, as the writer in *La Construction Moderne* tells us, the "concours Rougevin" attracts practically the whole of the first class. Any man who does exceptionally well, even if he does not win a medal, has a chance of a mention, and, consequently, of an extra *valeur*, and the result is that the exhibition hall is crowded with competitive designs. From the point of view of education, as every competitor who wishes to win makes great exertions to study and draw ornament and decorative effects, the change in the status of the Rougevin competition has been of much value to the school; and one writer suggests, with great reason, as it seems to us, that the money prizes now contended for in special competitions might advantageously be transferred to the regular "concours," where they would serve as additional incentives to emulation, and would fully answer their purpose of rewarding earnest students, without forming a distraction from the course of school work. Of course, it would be difficult to accomplish this with prizes awarded in accordance with the conditions of gift of a deceased founder, but, while the French authorities may safely be left to deal with the subject for themselves, the friends of architecture in this country, who wish, as many of them will, to stimulate and reward effort in our rapidly multiplying architectural schools, will do well to keep the point in mind. It is already not unusual, in our older schools of architecture, for the professors in charge to receive a communication from some generous and well-meaning person, offering a prize,

a twenty-dollar gold piece, or something of the sort, for the best design, by students in the school, on a theme chosen, more or less wisely, by the benefactor. The professors, of course, feel bound to carry out wishes of this kind, if possible, but in nearly all cases, we think, it is done at a considerable loss to the school. Under our regulations, students forfeit nothing in the way of *valeurs* by spending their time on such competitions, and the novelty, and the element of chance in the offer excite their interest; so that, in the end, a very disproportionate amount of time, out of a course intended to be condensed to its utmost limit, is spent by a considerable number of students over a problem which teaches them little or nothing, in the hope of winning a prize which is insignificant in comparison with the sacrifice made for it. It would be infinitely better, and more to the credit of the giver, to have such gifts offered as prizes for the most thorough performance of the whole, or certain portions of the school work. The Boston Society of Architects has for many years given a hundred dollars a year, in two prizes, to the graduating students in architecture at the Massachusetts Institute of Technology who have shown the most proficiency in their school work in design and construction; and the effect has been admirable. For persons who have less to give, but would like to help, it would be very pleasant and useful to offer small prizes—a ten dollar gold piece, or a well-selected book, in the younger classes, either for the most creditable work through the year, or the best total of examination marks, or for the best design at any of the monthly "concours." Nothing pleases young students so much as a little encouragement and interest shown by the outside world; and if the encouragement is judiciously offered, nothing does them so much good.

AN interesting sale of historical objects, connected particularly with the Stuart family, took place not long ago in London. As usual, the prices obtained were very low, compared with what would probably be paid in this country for such things if their genuineness were as thoroughly attested as in this case. For example, a heart-shaped locket of rock crystal, mounted in silver and diamonds, and containing a miniature portrait of Mary Queen of Scots, with a plait of her hair, sold for a trifle over three hundred dollars. We are inclined to think that many undergraduates of Yale or Harvard would have given ten times that sum for a treasure of so much sentimental interest. An object of more historical importance was a copy of the "*Eikon Basilike*," with the autograph of Charles II on the fly-leaf, which sold for two hundred dollars. A gold ring, containing hair of Charles I when a boy, brought one hundred and thirty dollars; and a ring with a rose diamond, under which was set a piece of the dress worn by the Princess Elizabeth, daughter of Charles I, in Carisbrooke Castle, sold for one hundred and sixty dollars. A gold ribbon slide, with rock crystal, enclosing a plait of the hair of Charles I, said to have been cut off the day before his execution, brought only eighty dollars. The librarian of Windsor Castle, who, presumably, made purchases on account of the Queen, was one of the principal buyers.

THE *Revue Industrielle* mentions that the highest railway in the world is to be completed in 1892. This is the road from Buenos Ayres to Valparaiso, of which we have already spoken. Three-fourths of the line is finished, and in use, and the rails are laid on one-third of the remainder, but the portion which traverses the Andes is as yet incomplete. The passage is to be effected by the Cumbre Pass, which is more than thirteen thousand feet above the sea, but the railway will avoid the summit by a tunnel, which will be ten thousand feet above the sea, this is three thousand feet higher than the Arlberg, the highest tunnel in Europe. It seems that an extraordinary blunder has been made in the road. The different sections belong to as many different companies, and each has built its own portion, not only independent of the rest, but at a different gauge. The first portion, from Buenos Ayres to Mendoza, is about at our standard gauge; the Valparaiso end is nine or ten inches narrower, and the mountain section is at a narrow gauge, of thirty-nine inches. Consequently, although the road is less than nine hundred miles long, passengers and freight must submit to two transshipments on the way. Already, the inconveniences of this arrangement begin to become conspicuous, and those most interested bewail the political complications to which the proper planning of the enterprise was sacrificed.

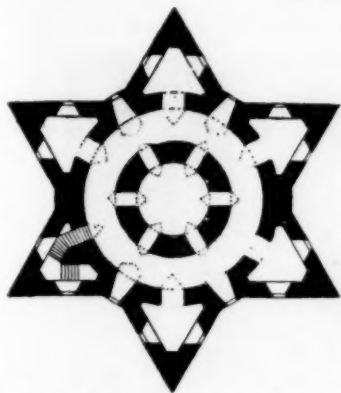
AUSTRIAN ARCHITECTURE.¹—X.THE RENAISSANCE OF THE SIXTEENTH CENTURY IN AUSTRIA.
— III.

Fig. 14. Plan of the Star Castle at Prague, Ground Story.

The Bohemian noblesse, following the emperor's example, soon adopted the new style; but they were not always successful in finding builders wholly familiar with the Italian forms and proportions which they sought to imitate in some degree without entirely abandoning old constructional traditions or their own ways of thinking. The Schwarzenberg palace (Figure 16), begun on the Hradschin in 1545, shows in its high graduated gables, divided by pilasters and cornices into square panels and painted, in sgraffito, a compromise between the traditional constructive manner and the new forms.

The sixteenth-century portions of the castles of Pilsen and Kacerov, apparently the work of one architect, display an imitation of Italian forms, which were spoiled by the adoption of too low proportions, with too heavy and too simple details. Sculptural decorations are almost wholly wanting, while the rough-cast walls are painted in sgraffito. The façades, which are broken by turrets, are surmounted by high gables. But here also we find a square tower surrounded by several orders of arcades. The castles of Krumau [1508-1520] and Wittingau, which belonged to the Rosenberg family, one of the most powerful houses in Bohemia, exhibit a similar mixed style; but they have also square courts adorned with several orders of beautiful arcades.

The style of the developed German Renaissance is exemplified in the castles of Schwartz, Kosteletz [1570], Bensen, Neuhaus, Friedland and Platten [1612]. Toward the end of the period the Italian element began to prevail again without deteriorating immediately into the Baroque.

Vincenzo Scamozzi was the architect of the beautiful portal of the new imperial palace on the Hradschin at Prague; it is

ration under Ferdinand I or Rudolph II, and shows a Doric system similar to the one cited above. The palace Waldstein or Wallenstein (Figures 17, 18, 19) at Prague, built between 1621 and 1629 by Giovanni Marini of Milan, must be considered as a late product of the high Renaissance in Bohemia; the Baroque elements appear there only in modest fashion. The windows of the ground-floor are square at the top, while the others are arched. In the court, the façade of the entrance and the one opposite are decorated with orders of columns in

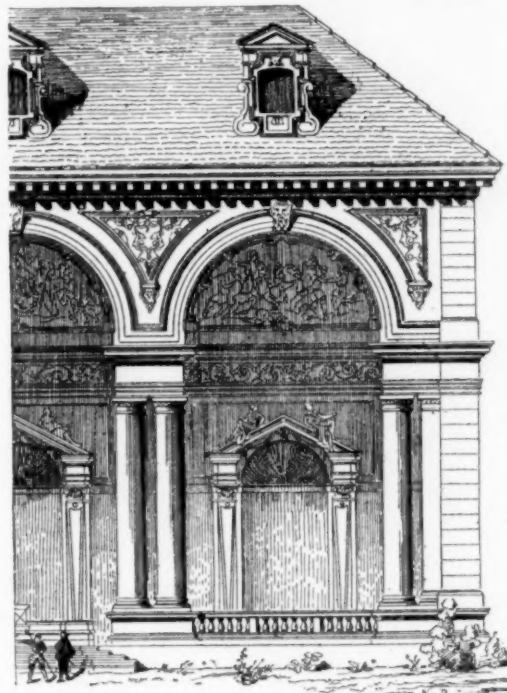


Fig. 17. Lodge of the Palace Waldstein, Prague.

relief; the other two walls are smooth. The rich decorations of the large hall, which occupies two stories, are the only portions showing the finished Baroque style.

The lodge of Wallenstein's Palace, built by the same architect, has a much more artistic and imposing appearance than the palace itself. The cut which we give of it makes a description unnecessary.

The castles of Moravia in the Renaissance style, such as Mährisch-Trübau, Kromau [1557], Namiest [1573], Bucovic [1581], Racie [1598], Eywanovitz [1608], Lundenburg and Rossitz, were nearly all founded, except the Schloss of Eywanovitz, by the powerful Boscovic family, and all have arcaded



Fig. 15. Plan of the Star Castle at Prague, Second Story.

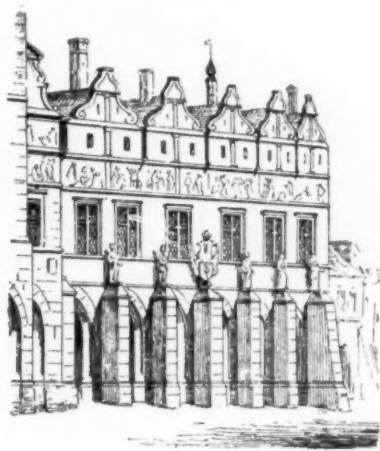


Fig. 20. Town-hall at Brück.

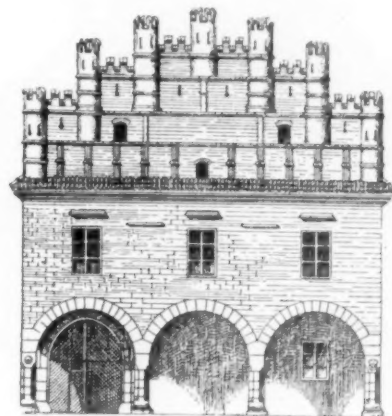


Fig. 21. House at Wittingau.

in rustic Doric order, with three rectangular bays; the entablature is surmounted by a square attic flanked with Ionic pilasters and adorned with armorial bearings in relief; on both sides rise obelisks. The portal of Ladislav's Hall belongs to a resto-

cours. We will confine our description to the château of Mährisch-Trübau, begun by Ladislav Buscovic in 1492. It was in the form of a square with a tower at the south-west angle. The most curious portion of the edifice is a portal which bears the inscription: *Ladislav de Boscovic et Nigromonte dominus castri hujus me fecit sub anno MCCCCLXXXII* [1492].

¹From the French of H. Semper, in Planat's *Encyclopédie de l'Architecture et de la Construction*.² Continued from page 145, No. 789.

It is treated exclusively in Renaissance forms; these are somewhat heavy, perhaps, but they show no trace of the Gothic; the portal is remarkable alike for the sumptuousness of the ornaments and mouldings and the simplicity of the composition. It is the oldest specimen of Renaissance architecture in the non-

princes and nobility of Bohemia and Moravia adopted the Renaissance style; they were also instrumental in introducing it into the greater part of the public buildings in the cities, notably in several of the town-halls.

A group of three straight windows was inserted in the façade

Fig. 18. Vestibule of the Palace Waldstein, Prague.

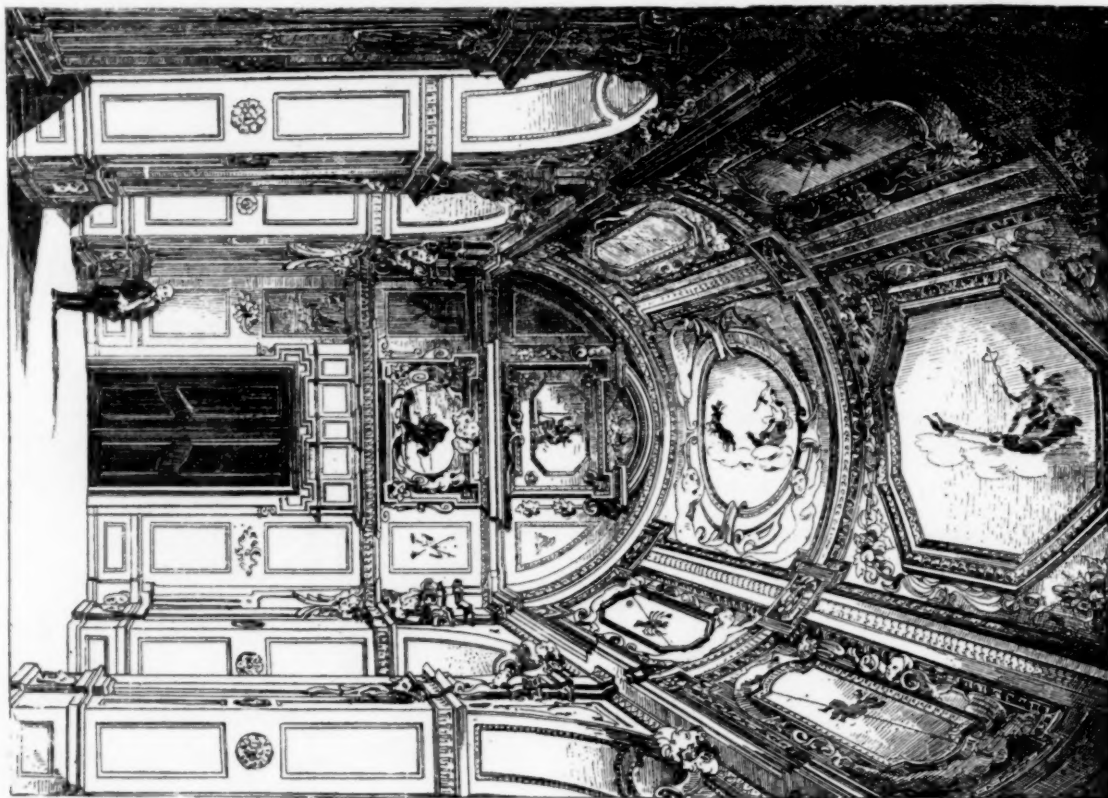
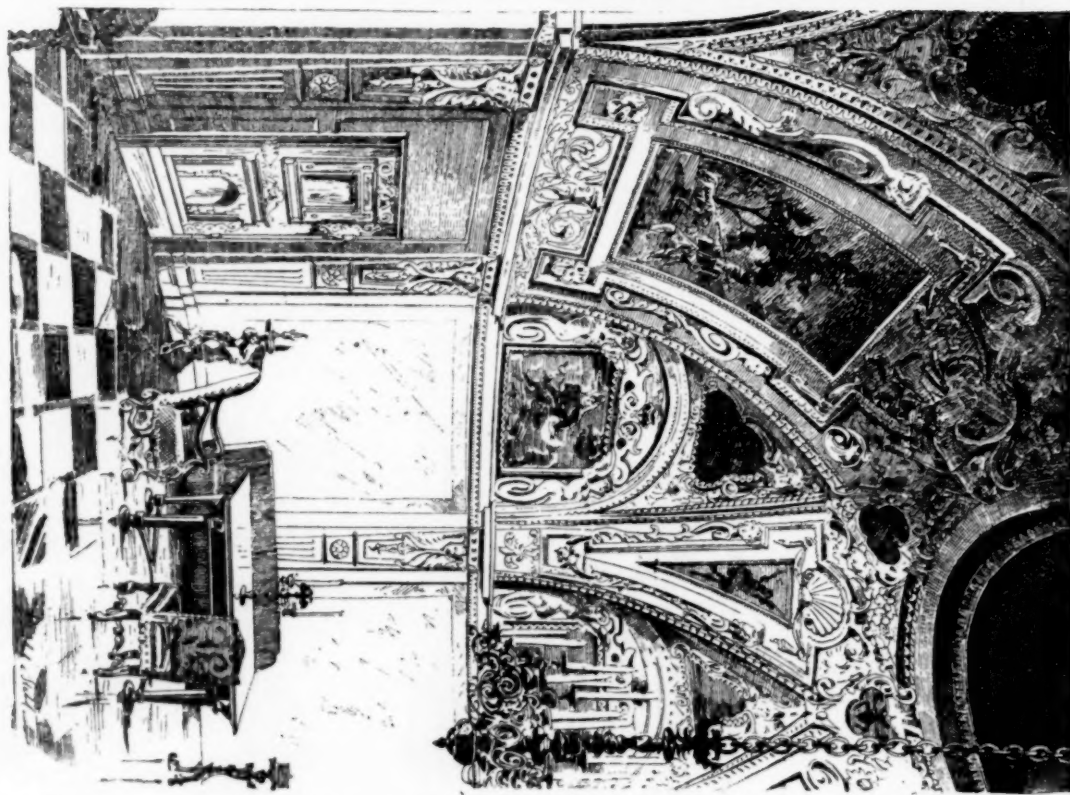


Fig. 19. Hall in the Palace Waldstein, Prague.



Italian divisions of Austria. In 1618, the Italian architect Natale de Bonamano completed the castle, constructing on the northern and eastern sides of the court two orders of arcades, the one on the ground-floor with Tuscan rustic pillars, and that on the story above with Tuscan columns. But in 1840 the castle was in great part destroyed by fire.

It was not merely in their castles and palaces that the

of the town-hall at Prague, which is otherwise a Gothic structure; the central one of these is higher than the others and surmounted by a pediment, arched in the Renaissance style. But the Corinthian pilasters between the bays, bear Gothic pyramids, and the crownings of the lateral bays are of a semi-Gothic type. Other town-halls in a more advanced Renaissance style may be seen at Brüx (Figure 20), Leitmeritz, Kolin,

Pardubitz, Chrudim, Klattau (built by a Dutch architect, Sal-nellyn of Amsterdam), Pilsen and elsewhere. These edifices are not usually treated in the pure Italian style, but in the style of the German Renaissance.

The same characteristic appears in the few Bohemian burgher dwellings of the period, in the Renaissance style. The conservative spirit of the burghers led in general, to the perpetuation of the Pointed traditions, but Renaissance houses are

than in architecture and where all its beauties as well as all its oddities were freely displayed. We have already noticed the fine fountain in front of the Belvedere; and not inferior to it was the one in the court of the old town-hall at Prague which was unfortunately demolished in 1864. A very beautiful wrought-iron grille, of the year 1560, adorns the well in the Kleine Ring at Prague, and there is another magnificent grille around the tomb of Charles IV in the cathedral. Wood-carving

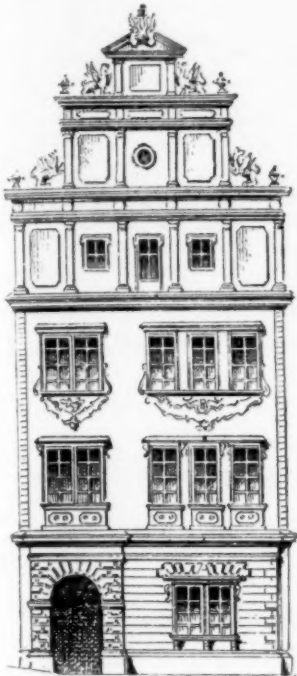
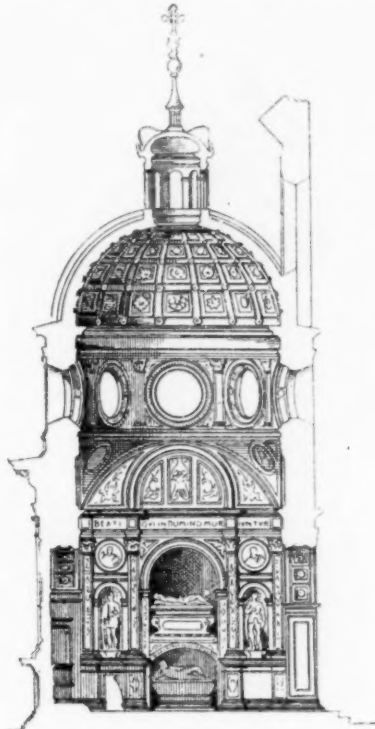


Fig. 22. House at Pilsen.



Fig. 23. House at Hohenelbe.

Fig. 24. Section of the Cathedral at Cracow.
(Chapel of the Jagiello Family).

found at Deutsch Brod, Iglau, Krumau, Wittingau (Figure 21), Budweis, Prachatiz, Pilsen (Figure 22) and so forth.

In the wooden houses of the sixteenth century, whether built with upright timbers or horizontal beams, Renaissance forms are sometimes imitated so far as possible, though these are not always well interpreted. Stud-work houses are especially common in the German cities of northern and western Bohemia, as at Eger, Plan, Joachimsthal, Görkau, Klostergrab and Graupen; while the blockhouse form is encountered rather in

and joinery were especially cultivated in the German portions of Bohemia; there are some magnificent stalls in the parish church of Brück; at Graupen we find beautiful wooden altars; at Leitmeritz the town-hall contains some remarkable wainscoting. At Prague, Klattau, Königgratz and Kuttenberg, there are celebrated bell-foundries. The use of tin in the artistic industry became a specialty in Bohemia; it was not only employed for small articles like plates and vases but for basins and baptismal fonts, as the font at Leitmeritz, of the year 1521,

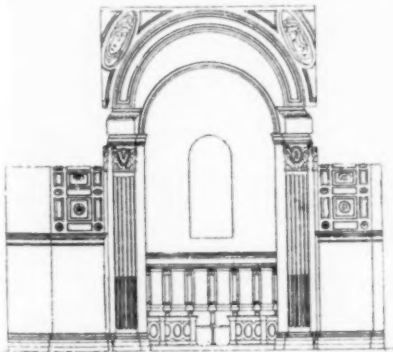
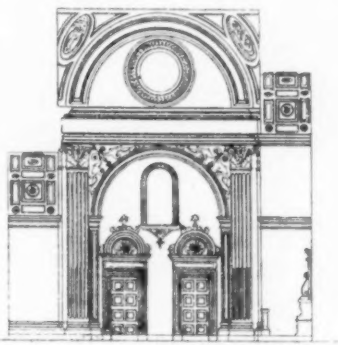
Fig. 25. Section of the Chapel of Cardinal Bahoetz,
Gran.

Fig. 26. Section of the Bahoetz Chapel.

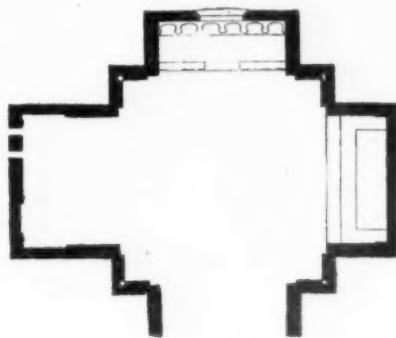


Fig. 27. Plan of the Bahoetz Chapel.

Slavic centres, as at Nachod, Hohenelbe (Figure 23), Arnau, Oels and Schazlar.

Renaissance churches are also very rare in Bohemia. We note the small church of Waltirsch, built in 1573, which is distinguished for the elegance of the interior members; and also the Carmelite church of Maria de Victoria at Prague and the church of the Madonna at Altbunzlau, the former of which is certainly the work of V. Scamozzi, the other probably.

The Renaissance style in Bohemia appears especially in the decorative arts, where it met, in general, with better success

which is treated in a noble style of the transition from the Gothic to the Renaissance.

The Renaissance was introduced into Galicia and Hungary by Italian masters. As early as 1512 we find an Italian architect, Francesco, charged with the restoration of the citadel of Cracow. In 1520, Bartolommeo of Florence, under the orders of Sigismund I constructed on the right side of the Cracow cathedral the chapel of the Jagiello (Figure 24); this is the gem of all the productions of the period in Austria. The lower part is cubical in shape and without windows; the outer angles

are adorned with very graceful pilasters, while the intervening walls are covered with escutcheons in relief, inscriptions and so forth. An octagonal drum, with eight circular windows framed in by pilasters, rises above the main body of the edifice, and supports a hemispherical dome, which is crowned by an elegant lantern with open arches. In the interior, the delicacy and purity of the forms, the richness of the details and ornaments, the harmony and beauty of the proportions — everything bears



Fig. 28. Bahocz Chapel in the 18th Century.

the character of the Florentine decoration of the beginning of the sixteenth century, or, to be more exact, all is in the style of Andrea Sansovino, who had just introduced into the decorative sculpture of tombs and altars, the triumphal-arch system, comprising a large niche with a smaller one on either side, separated by columns and pilasters. It may, then, be assumed that Bartolommeo of Florence was a pupil of Sansovino. The same master also sculptured the baldachino,

ment in the style of the Florentine palaces, the Turks themselves would not have destroyed it, but would have made it rather the residence of their pasha. Yet not even a stone is left of it. The King, and the Hungarian nobles of his day, probably occupied simple dwellings which were merely adorned in the interior with the productions of the Italian masters. The Hungarian people, at that time and later, as a general thing, took no interest in art, and produced neither artists nor workmen capable of executing artistic and monumental works. The Italians in Hungary were too isolated to be able to create a national school, and they imported nothing but pieces of sculpture and productions of the industrial arts. It was not until the sixteenth century that architects here essayed some small artistic constructions in the Renaissance style. The chapel of the cardinal and archbishop Thomas Bahocz, erected at Gran in the 1506 (Figures 26, 26, 27, 28), is a charming monument in the pure Florentine style. It was originally attached to the old Romanesque cathedral of St. Adalbert; but in 1824 it was transferred to the new cathedral, where it forms the lateral chapel on the left. Andrea Feruccio di Fiesole was the architect of the tomb, in the form of a triumphal arch, in which Cardinal Bahocz was interred, and it is probable that he was also the architect of the chapel itself. The interior is of fine execution, but it is a little gloomy, either on account of the use of red marble in the members or because the light furnished by the three circular windows in the lunettes is insufficient.



Fig. 16. Schwarzenberg Palace, Prague.

supported by six circular or octagonal columns, over the more ancient tomb of King Ladislav II in the same church.

Italian masters had been summoned into Hungary, even in the fifteenth century, by King Matthias Corvinus, to whom they had been recommended by his governor, the noble Florentine Pippo Spano (Filippo Scolari); among these was Benoit of Majano, whom the king employed especially for works on wood and marble. Among the other Florentines in the king's service were Pellegrino di Ferma, Ammanatini, surnamed the "fat joiner," Cimenti Camicia, and Baccio and Francesco Cellini. But nothing now remains to substantiate the tales told by the Hungarian chroniclers of the fifteenth century, concerning the magnificent constructions of King Matthias and his nobles. If the King's palace at Pesth had really been a monu-



Fig. 29. Doorway of the Parish Church of Klausenburg.

The portal of the parish church at Klausenburg (Figure 29) offers another example of Cinquecento production; it was executed in 1528 and shows that the tendency towards a burdensome profusion of plastic decorations, common in Hungary in the Romanesque period, reappeared there again during the Renaissance. The architectonic members of this portal are almost smothered by the plastic decorations with which they are adorned and in part replaced. What is more curious still is the almost Byzantine character of the foliage, while the multitude of children figured on the jambs and frieze recall, by their fat forms and joyous movements, the Florentine school of the fifteenth century.

[To be continued.]

ITALIAN TOWERS.¹—VI.

Venice from the Giardini Pubblici.

WITH the exception of Rome, there is probably no city in Italy of which so much is expected as Venice. Rome and Venice might popularly stand for the kingdom of Italy, or more properly Rome, Venice and Naples might. No tourist who goes to Italy, has seen Italy unless he has floated on the Grand Canal by moonlight, seen the Bridge of Sighs, and refreshed himself with ices and cakes at Florian's.

The Colosseum and the gondola vied with each other in our geographies as the characteristic features of Italy.

But from the very nature of things Venice is one of the least Italian of cities.

For the last twenty-five miles of the railway journey there, one travels through the same low flat country. The railway has a ditch on either side with its little trimly cut hedge just beyond, and across the marshy fields, sometimes of rice and sometimes of vegetables, the trees in dismal rows, the farm-houses and now and again a slender tower, move slowly by each other at varying speed. And off to the left and north, softly purple below, but sharpening into streaks and acute points of white above, lies the long wall of the Alps.

One might almost have left Italy behind. The salt smell of the marshes comes in at the windows. Finally, in the distance Venice comes in sight, a low, straggling line of specks, thickening to a mass at the centre, with a low dome or two and many slender towers.

The train swings around a little and heads directly for the town, softly and quietly as though the spell of the place were already upon it—over two miles of low, broad stone viaduct, across patches of

marsh changing to shallow reaches of muddy water—water stretching far away on either side, broken only by a low fort or two, half-submerged, and long straggling lines of posts marking the many channels leading off to the horizon and giving the landscape its only hint at perspective. The approach to Venice by moonlight may be rarely beautiful, but by daylight it is not. The railway enters at the back-door, and the back-door of Venice is as dirty and unprepossessing as the same entrance to any American or other European city.

If Venice has a character all her own, no less do the Venetian towers form a class by themselves—a class as distinct as the old towers of Rome, or the Norman towers of the extreme south of Italy. The main body of the tower is always a straight, square shaft without taper and almost invariably pilastered, with the same arching over of the recessed panels at the top; above this main shaft is always an arcaded story, and above that an attic either in the form of a square or an octagon surmounted in turn, sometimes by a pyramid, sometimes a cone and sometimes by the "ogee" cupola of the later Renaissance. This, in more or less varying form and proportion, constitutes the Venetian tower.



San Stefano, Venice.

And it is the Venetian tower that is the most generally known of the Italian towers. Every traveller who goes to Italy goes to Venice; and every one who goes to Venice buys a colored photograph of Saint Mark's Square, with the campanile—more or less distorted by the lens of the camera—a prominent feature of the middle ground; and so many Americans go now to Europe and Italy, that a sketch of this campanile of St. Mark's is quite superfluous. It is one

of the oldest of the Italian towers and its alterations and vicissitudes have been many. The all-knowing Baedeker tells you it was founded in 888. The simple Vasari says it was founded in the twelfth century by one Buono, who also built the Castel dell' Oro in Naples. Vasari commends his thorough work in the foundations, "having



San Giorgio dei Greci, Venice.

so admirably constructed them and fixed the piles that this tower has never sunk even by a hair's breath, as many other buildings constructed in Venice before his time were and still are found to do."² From which it would appear that the settlement of the tower has occurred since the middle of the sixteenth century. Vasari, moreover, says it was finished in 1154, which is very probably correct. In 1329 it was restored and in 1417 the marble top was added.

All the other campaniles in Venice and indeed in the surrounding country are copies and modifications of St. Mark's, of which, bye the bye, it may not be amiss to remark Vasari did not approve either



San Trovaso, Venice.

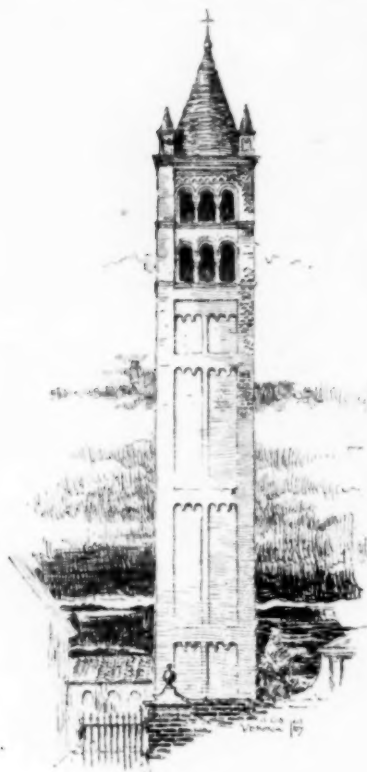
the general design or the detail. Its solidity alone commended itself to him; but compared with the majority of Italian towers it seemed to me heavy in its proportions.

Although the tower of San Stefano is based on the typical Venetian tower it has decidedly more originality in its composition, due doubtless more to the date of its erection, sometime in the fourteenth century, than to any other cause. The recessed panels, the arcaded story above the almost solid shaft, crowned in turn by the octagon and little roof, are all as Venetian as may be. Its chief departure

¹ Continued from No. 768, page 164.

² "Vasari," Mrs. Jameson's translation.

from the traditional type is its Gothic feeling, the absence of all detail and dependence upon proportion. A square tower with an octagon top is always more or less unpleasing, but in other respects the tower is distinctly refreshing in its simplicity. It is of brick like the church of which it is a part—a church of the Gothic time which has not been destroyed by restorations and which has more or less of



San Zeno, Verona.

of the humbler class sleeps in the sun from its rising to its setting, in every variety of pose; where the venders of fruit and hawkers of lithographic folders importune the native lounge and the traveller from England and America: going down through all this—quite as busy and even more picturesque than the life in the Piazza—and up and down over the bridges of one or two canals, you will come to the Canal dei Greci and see on the right of it, just about as far away from you as it appears in the sketch, the tower of San Giorgio dei Greci. And here, again, the Venetian type repeats itself. The same long pilasters on the main portion unbroken by horizontal courses; the belfry with its arched openings, and above this the solid attic, this time square and crowned with a top in humble imitation of the St. Mark domes, even to the glittering group of balls which seemingly hover just above the topmost point without visible means of support. It is a sixteenth-century tower, built about 1561 and designed, undoubtedly, by Jacopo Sansovino, the architect of the church.

Sansovino deserves more than passing mention. Born in 1477, upon the same street in Florence as was Michael Angelo, his mother, says Vasari, struck by this coincidence and the boy's natural gifts, determined he should be a sculptor. He was placed under Andrea of Sansovino, and like many another student took the name of his master, by which he is better known than his family name of Tatti. He soon outstripped his teacher, and went, after a few works in Florence and vicinity, to Rome. There he designed the church of the Florentines, St. John the Baptist, and did more or less of work for Pope and cardinals. Returning to Florence, he designed, in company with Andrea del Sarto, a series of wooden triumphal arches and a temporary Renaissance façade for the cathedral in honor of the visit of Pope Leo X. And the cathedral façade so pleased Leo X that he expressed his regret that Arnolfo, the architect of the church, had not had the advantages of Sansovino. Indeed, so pleased was Pope Leo that he invited Sansovino to kiss his feet. Later, Sansovino left Florence for Germany, but stopping at Venice by the way, was prevailed upon to remain. And it is in Venice that the greatest and the most of his works are found. The Library of the Ducal Palace, the Scala dei Giganti, the Palazzo court della Ca Grande, a dozen other palaces and churches, all are his. He also repaired and strengthened the domes of St. Mark's, and doubtless his intimacy with that church accounts for the topping-out of the San Giorgio tower. It is not often that the personal characteristics of these old architects are preserved for us, but of Jacopo we have more or less detail: that his beard was red and cut short; that he was fond of the feminine sex and in turn beloved by many of them, that he

was wont to eat three cucumbers and a lemon at a sitting, and digest the same. All these little points bring him nearer to us and give us some feeling of fellowship with him. He lived to the ripe age of ninety-three despite his cucumbers, and died in 1570 and at Venice. Jacopo did not establish his foundations of San Giorgio dei Greci as well as did Buono those of St. Mark's tower; for this tower of his leans in a startling manner, in view of its slender proportions. But for the bareness of the top it would be a very beautiful tower. Its proportions are far better than those of St. Mark's and its detail is good, but the square stuccoed cube with its miniature dome of St. Mark's above, utterly devoid of ornament, well-nigh ruins the whole tower.

There are many other towers in Venice, but they are as a rule, uninteresting and stereotyped in their design. The tower of the little church of San Trovaso is one of these, but is worth going to see on account of the glimpse it gives you of a part of Venice comparatively overlooked by visitors.

If you take the ferry across the Grand Canal to Santa Maria della Salute—which you can do for a cent—and then find your way on foot over the narrow arm of land to the quay of the canal of the Giudecca—a quay lined with the most characteristic boats, after the gondola, that Venice affords; boats with huge triangular sails, square bows with great eyes painted on them, like those which as children we read of in our Roman histories; and on the decks a confused maze of cordage, matting and sleeping sailors in picturesque costumes. By all these, and up-and-down over the little bridglets that span the lesser canals, until you come to one wider than the rest, and there to your right is the church of San Trovaso—and the most un-Venetian spot in all Venice. For there are trees, quite a grove of them, and an odd collection of wooden houses which look strangely out of place here. And drawn up on a little shelving beach before them, you will find a collection of gondolas in various stages of construction and repair, by no means the least interesting portion of the view, and you will see that the gondola out of water and divested of its swan-like prow, is not so unlike a dory.

I stumbled upon this spot one day and also upon a ruddy Englishman who said it was the most characteristic spot in Venice and one much frequented by appreciative artists. There were one or two of them there hard at work in color, and so with the tower as an excuse, I, too, made my humble sketches with pen and ink.

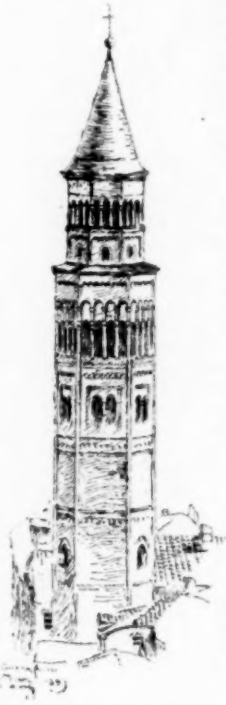
It is almost as hard to wind up these rambling notes as it was to leave Venice behind us one Sunday morning in April, with our baggage checked for Paris.

At Verona we stopped a day and carried away with us memories of the glorious sweep of the amphitheatre as we stood on its top; of the soft tinkling of the wrought-iron screen which surrounds the tombs of the Scaligers as it swayed in the wind, and the view at sunset of the tall and slender shaft of San Zeno, one of the most beautiful of campaniles.

At Milan again, after four months, we went back to the roof of the cathedral and there in the white wilderness of crockets and pinnacles watched the grand line of the Alps to the north, listened to the military band in the piazza below, chatted with two young English draughtsmen who were sketching and measuring every individual crocket on the cathedral, and sketched, ourselves, at intervals, the brick and stone campanile of San Gottardo.

A day at Turin with its arcades and nearer views of the great mountain-ranges, and then glimpses through a rainy window-pane of a landscape growing more and more mountainous, until, as the rain changed to snow and the mountains closed in upon us, we plunged into the blackness of the Mount Cenis tunnel and left Italy, Italy and her towers, behind us.

GEO. CLARENCE GARDNER.



San Gottardo, Milan.

THE GROWTH OF LONDON.—One of the most singular facts about the growth of London is its regularity. It may be roughly taken that every month about a thousand houses are added to London. In August of this year 765,577 houses had to be supplied by the water companies with water; in September that number had increased to 766,797. In August of last year 754,464 houses had to be supplied, or 11,113 below the number in the same month of this year. In September of this year the companies had to supply 10,976 houses more than in September of 1889. This extension is not confined to any one portion of the capital, but a preference is still being shown for the north and northwest suburbs.—*Pall Mall Budget*.

ON THE BEST DISTRIBUTION OF AREAS FOR CONCENTRATED RESIDENCE.¹

AT the last Congress of this Association the privilege was given me of exhibiting plans for securing, in future tenement-houses, an avoidance of the main evils of the present tenement-houses of New York, Brooklyn and Jersey City, etc.

The plans then exhibited, illustrated a system of concentrated residence which I had worked out after, first, discovering the cause of New York's and adjacent cities peculiar tenement-house evils [viz, the street-and-lot system of those cities as I showed before this Association, thirteen years since]; and then, second, as that cause once established, is not readily removable, the plans here exhibited resulted from working out a method or system which, while useful everywhere, is also practicable on the lots most prevalent in those cities; yet by which their peculiar tenement-house evils can in future buildings, be avoided; and this while also giving, when thought desirable, the same high rate of concentration, four families on a floor on each twenty-five by one hundred feet lot, as is now common.

But I found that the plans here exhibited last year were not readily understood by some of the audience interested in the subject, and that there was need of plain directions showing how to build tenement-houses which would avoid tenement-house evils; directions which could be understood without plans as well as give the reason for each feature—a thing which plans usually do not, and indeed most often cannot give—directions which any owner or builder can follow who has command of one and a half, or more, lots; yet direc-

Lack of facilities for carrying on home work, whether domestic or other.

Lack of quiet.

Lack of freedom from overlooking.

Lack of a place for and facilities for recreation, especially for children.

My studies, for some years, have been in the direction of finding some way of avoiding, first one and then another, of these evils; and the results of those studies, whenever fairly successful on any point, have been published in the *American Architect and Building News*, or other journals, so that any disposed might make use of those results. And the combined results of those studies have now been published in the *American Architect* as a system, which shows not only how, in planning and building, such evils may be avoided, but further, shows how may also be avoided the evils of discredit to the dwelling from anything shabby in its mode of approach or general appearance; and aims, even further, to combine with these ends, whatever other features compatible with them may add to the comfort of the residents of dwellings.

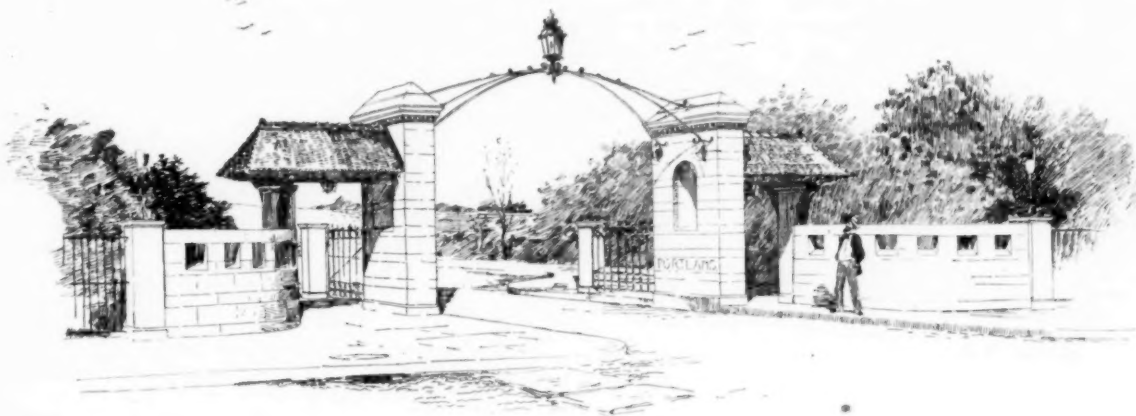
To secure these advantages, while at the same time keeping up a high rate of numbers housed on a given space of ground, we must, as the system shows, observe the following simple rules:

1. In planning buildings, begin, not with the exterior dimensions or form, but with the interior needs, and, therefore, whatever the size of the rooms, leave one end of every room exposed to the outer air, although the room may be shut in by other rooms in the rear and on both sides, and by rooms below and above it—this will secure, by a window, or windows in this end, not only light and air but direct outdoor light and air.

2. In combining two rooms to form a dwelling, see that their ends, thus left open, face in opposite directions—this will secure, when the windows are set open and the door between the rooms, a command of a through-and-through current of air. All additional rooms should be similarly combined so that the dwelling is never more than two rooms deep and so that it always has thus at command a through-and-through draught of air, and convenience will be increased if the partitions of opposite rooms be placed not in line with one another, but so that each room can open into two others in the rear or in front of it.

3. Join together such dwellings, of two or more rooms, in rows, whose longitudinal axes are on the line of the meridian; this will secure sunshine throughout the spaces between the rows of dwellings. Where the buildings are of more than one story the stairs should, in order to be light and well-aired, occupy the position, but not necessarily the size of one of the rooms.

4. To insure that the sunshine entering the spaces between the



PROPOSED GATES AT ENTRANCE TO
PORTLAND PLACE.
T. C. LINK ARCHT.
J. LOUIS 79

tions which by ignoring all lines of lots, confine attention to the ends to be gained in careful planning, for all localities and dimensions of site alike.

The main evils of most tenement-houses and of most forms of a high concentration of residences I hold to be:

A lack of air and light sufficient in each room of each dwelling for healthful living; or else, a lack of such an independent control of the air and light supply as is required for convenience, comfort and seemly living.

A lack of a command of a through-and-through current of air, through each dwelling.

Lack of sunshine.

Lack of privacy.

rows of dwellings may further enter the rooms, bow out each room front, like the bow of a ship for instance, so that the windows on the sunny side of such a bow-out may be as nearly as possible, at right angles to the sun's rays, at the hour they fall on that place. And, further, gradually diminish the size east and west of the rooms towards one end of the rows, and increase such depth in the rows towards the other end of the rows, so that the spaces between the rows become of a wedge shape, and wider at the end toward the sun. The shorter the rows, the more easily this can be conveniently done, the longer the rows, and the narrower relatively the interspace between them, and also the higher the houses, the shorter will be the time of sun exposure thus secured. Where the interspaces are very wide in proportion to the length of the rows and the height of the houses, it will not, on the other hand, be necessary to use this feature.

5. Privacy will be furthered by the necessity implied by the conditions above named; because, in order to secure front and rear

¹ A paper read before the Congress of the American Social Science Association at Saratoga, September 3, 1890, by Mr. E. T. Potter.

facing rooms, and command of uninterrupted communication between them, so as to secure a free command of a through-and-through passage of air at all times, we cannot have long corridors communicating with many rooms, such as are common in hotels and public buildings, and are found to be usually preventive of complete privacy, as well as to be often noisy, if uncarpeted, or used by any but a few comparatively silent people. Privacy will be also furthered in proportion as the windows of one dwelling cannot overlook those of another; as, for instance, if all the windows are on the southerly sides only of the bow-outs, they will be screened from view from other windows in the same row, and from the majority of the windows of the row opposite. Privacy, security and convenience can be furthered by using not only speaking-tubes, letter-boxes, chain-bolts, etc., but also by having perforated eye-pieces on the doors as in Germany, and using indicating dials, which can be set to show that the occupant of the dwelling is in or out or where and how long he will be absent, etc.

6. Facility for home work of a domestic nature, such as washing and ironing, will be furthered if each dwelling is provided not only with water laid on, but, on the roof of each building, with a clothes' drying and bleaching space. And if a portion of such a space be assigned for the sole use of each dwelling, and be screened off from the view of occupants of other like spaces by louver partitions which allow of the passage of air, only, privacy of domestic work will still more be furthered. Again, if each dwelling has a small private dumb-waiter to take linen to and from the clothes'-drying space, or bring up fuel, or food supplies, or materials of any kind, the privacy of home life not only, but of any home-pursued industry, will be furthered. And such industries will be still further aided if electric or other power, as well as water and gas, be laid on for each dwelling. Economy, convenience and privacy will be still furthered if each dwelling has its separate food and fuel cellar, as hereafter described.

7. If, further, the clothes'-drying spaces, while left open at the sides for the free passage of air to dry the clothes, yet are, except a small portion left open for bleaching, roofed over by a flat asphalted roof or terrace, a playground for children and an airy recreation space for all will be afforded.

8. And if, further, the railings, which must be added to keep children from falling off such terrace, be set in a few inches, and the space outside the railing be given to flower-boxes, which may be tended through proper openings which can be unlocked and opened in the railing, every family may have a small garden bed and have in some measure whatever of pleasure and recreation, and of gentle or thrifty or instructive influence may attend the culture of flowers and plants.

If, further, small fan-shaped balconies in the open air are added to the windows of the dwellings, invalids or older persons who do not care to mount to the playground, can still on them sit in the open air; and, in New York, and in places where a sea-breeze, or other breeze, prevails from a direction nearly or quite on the line of the meridian, there enjoy such breeze.

And, if, further, such balconies are provided with light louver blinds, by which they can, at pleasure be shut in from the sun, or from too much light, while yet admitting of a free passage of air, yet which can be folded back out of the way when not wanted in use, such balconies, and the rooms behind them, can be well shaded in summer. If of small projection, balconies will cast little or no shadow on the rooms beneath them in winter when sunshine is most desired, as then the sun, in northern latitudes, travels so low that the shadows are much inclined away from the perpendicular; and in summer, when the sun's rays are more vertical, the deeper shadows then cast by the balconies will give a shade to the rooms beneath them, grateful at that season.

And if, further, a canvass or other awning be stretched across the top of the interspace between the rows of dwellings, to shade them, as oriental bazaars are shaded from the hot sun of summer, in the middle of the day comfort will be further promoted.

9. If, further, the entrance to the interspace between the rows of dwellings, through which is the way of approach both to the dwellings on the ground floor and to the staircases giving access to the dwellings on the upper floors, be through a handsome portal on the street, such as those usual for a hotel or fine apartment-house, or private dwelling, and if the neatness of those entering, or the care of a janitor, keeps such portal and entrance-way neatly, the evil of discredit to the home from the mode or appearance of its approach will be wholly absent.

[Subsequent to the reading of the paper, and as an illustration of the system, a model was exhibited of an improved tenement-house, which showed how, by following the rules laid down in the paper, the usual tenement-house evils could be avoided. The model also showed a number of additional features for insuring further quiet and privacy, besides providing a large room which could be used as a reading-room or swimming-bath, or for other social purposes.]

FRESCOS DISCOVERED IN THE CATHEDRAL OF CAHORS.—While repairing the roof of the cupola in the Cathedral of Cahors, a series of frescos representing eight prophets, and having in the centre the lapidation of St. Stephen, to whom the church is dedicated, has been discovered. These works are in good preservation.—*Philadelphia Telegraph.*

THE ILLICIT-COMMISSION EVIL.



ARCHITECTS are over-given to querulous complaint in the matter of competitions; they have taken pains from time to time to let the public understand that they are a very hard-working and poorly-paid class; they murmur—shall we say pharisaically—when a fellow member of the profession is known to do work at less than full rates, but above all they cannot comprehend why the profession should not stand in better favor with the public.

We have on several occasions expressed our belief that there was a greater evil than the "competition evil," and that its existence was not only the cause of architects being found who will do work cheaply, but also and in a very large degree the reason why the public looks askance at the profession. This greater evil is the illicit-commission evil; it affects injuriously the honorable standing and the prosperity of the profession at large; it is a low, cowardly, villainous evil; it works in the dark, tempting the weak and backbiting the strong. It is an evil that should be crushed—it can be and it must be, for the longer it exists the greater will become its proportions and its power of hurting the profession.

The correspondence appended to this is only a sample of what is continually forwarded to us by architects who are forced to endure the annoyance and insult of receiving such propositions; they are only the last few specimens that have come to us, and we make use of them now because, for the first time, we have received the rejoinder made by a commission-offering dealer to an architect's letter of expostulation, which offers as a defence the statement that the method complained of is agreeable to the majority of architects. If it is, then the task we set ourselves will be an easy one, for we simply propose to find out what architects will declare themselves opposed to this method of promoting business; what architects have an understanding of their full duty to their clients, and propose to act up to their understanding of such duties.

The Committee on Ethics at the late convention of the American Institute of Architects declared with inferential plainness that one-half of the members of that body were unworthy to associate with the other half, and as we know of nothing so unprofessional as the taking of commissions from material-men we presume that the committee desired to indicate its knowledge that such commission-taking could be proved against a large number of members. If this be so, the Institute should call upon its committee to array its evidence and proceed to take action upon it at once, for a condition of affairs evidently exists inside of the Institute, if not without, which that body cannot afford longer to disregard. It is a disagreeable matter to stir up, but it cannot be cured otherwise. It is the plain duty of the Institute to investigate the matter and apply the remedy of expulsion even if half the Institute, or more than half, be lopped off.

We must again repeat our belief that, as a rule, material-men offer their commissions in total ignorance that they are tempting architects to transgress to such an extent as to bring them within reach of the law. To a business man wholesale rates, commissions and discounts are the prime factors of success—legitimate and wholly reputable means of carrying on his affairs. The offering by such men of a commission is not intended as the "insult" and "outrage" that many architects consider it, they are merely offering what seems to them, and what under other conditions would be, a legitimate compensation for services rendered or to be rendered; but if such men, who are generally as upright and honorable as the architects who find themselves "insulted," knew just what is the relation between architect and client they would not waste time and money in such unprofitable appeals.

We believe that this evil is the simple outgrowth of a misapprehension, and that it can in a certain measure be cured in a simple way by letting it be known who the architects are who will not under any circumstances avail themselves of the "business opportunities" which the illicit-commission circular-letter throws in their way.

For the sake of saving annoyance to architects and for the sake of saving time, money and the needless acquiring of a reputation for underhand methods to the material-men, for whom we have a very hearty respect, we will publish the names of all architects who may incline to subscribe the following declaration:

"The undersigned architects desire to state that they are absolutely and only the agents of their several clients, and that consequently they cannot accept from any dealer or manufacturer a commission upon any goods or apparatus that they may cause to be used in their clients' buildings. They respectfully request the dealers in such materials to spare them the annoyance of receiving circular-letters offering such commissions."

We will see that this statement is properly distributed so that dealers by using it can know what architects they can deal with without being mulcted in commissions.

[EXHIBIT A.]

BOSTON, MASS., November 28, 1890.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—The enclosed correspondence may be of interest.

HARTWELL & RICHARDSON, Architects.

November 22, 1890.

MESSERS. HARTWELL & RICHARDSON, BOSTON, MASS:—

Dear Sirs,—Believing that from the nature of your profession, you can, if you will, influence considerable trade in our direction, we

beg to say that we should be pleased to make it an object for you to do so, and will allow a liberal commission on all sales made to customers sent us by you.

Yours truly,

[Copy.]

November 24, 1890.

MESSRS. — :—

Dear Sirs,— We have your favor of the 22d inst., in which you propose "to make it an object" for us to send you customers.

You wholly misunderstand the matter, if you think that reputable architects are to be influenced in this way.

The only "commission" which they receive is from their clients.

Truly yours, HARTWELL & RICHARDSON.

November 26, 1890.

MESSRS. HARTWELL & RICHARDSON, 68 DEVONSHIRE ST., CITY:—

Dear Sirs,— Your favor of the 24th inst., has been handed to me to answer, and the only comment I care to make is, that judging from the score or more of letters we have received during the past two days from architects, assuring us of their intentions to avail themselves of our offer, requesting prices, catalogues, terms, etc., we think the "reputable" firms, according to your ideas, must be in the minority, and we shall still continue to cater to the large majority. We will modify our offer in your case, and any trade you see fit to influence in our way without commission, will be very acceptable.

Yours truly,

[EXHIBIT B.]

UTICA, N. Y., November 23, 1890.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,— The enclosed circular is not only an insult to the party addressed but to the profession at large. You are at liberty to use it with my name if you desire.

Truly yours,

G. EDWARD COOPER.

November 26, 1890.

MR. G. E. COOPER, UTICA, N. Y.:—

Dear Sir,— Being desirous to secure the early practical introduction of the — in your vicinity, we would be pleased to make you the following proposition: if you will specify a few — we will fill the first five or six orders and allow the purchaser our regular trade discount, thirty per cent off list. In connection we will secure you a commission on each and every order received through such effort of \$9.75. Under this arrangement we secure the early practical advertisement which we covet together with cost of manufacture; you a commission of \$9.75, and the pioneer in the use of the — the benefit of the trade discount. We have such arrangements with many architects in high standing and are receiving highly complimentary letters relative not only to the perfect working of the — but its handsome and artistic appearance.

Should you consider the above favorably, we would be pleased to hear from you at once, in order that we may fully protect you in your endeavors. Awaiting your reply, we are,

Very respectfully,

ROCHESTER, N. Y., November 24, 1890.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,— The enclosed circular [the one printed above] touches upon a subject that has already received attention in your columns. It occurs to me that it may be of some interest to you.

The statement "we have such arrangements with many architects in high standing" is to be doubted, I think.

Yours, etc.,

JOHN R. CHURCH.

[EXHIBIT C.]

LOUISVILLE, KY., January 18, 1890.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,— We herewith enclose you a letter to-day received from —.

We think it is possible that you might desire to call attention to the character of the enterprise which — seems to be engaged in, and to their implied statement that the most prominent architects are serving them, and in order to give you the opportunity for the protection of those who do not receive commissions from contractors and material-men, we send you this letter.

Yours respectfully,

MCDONALD BROS.

January 15, 1890.

MCDONALD BROS., LOUISVILLE, KY.:—

Dear Sirs,— We take pleasure in informing you that we are manufacturing —.

We have the indorsement of the most prominent architects of this country, who are specifying these —; as we have no salesmen in your section, we would say, we would allow you twenty per cent commission on all orders arising from your specifications; we do this as a means of placing these goods in your market, and to remunerate

you for any loss of time you may be put to in seeing that — are applied properly, and come upon the premises in original packages.

We should be pleased to correspond with you further on the subject. Sample — sent upon application.

Yours respectfully,

[EXHIBIT D.]

[Copy.]

August 27, 1890.

W. W. DUDLEY, ESQ., WACO, TEXAS:—

Dear Sir,— We desire to call your professional attention and critical inspection to our — of which we are sole importers for the United States. We feel confident in recommending — to your favor, that after a thorough examination and a practical test of its qualities, you will be convinced with what we know to be a fact and which we guarantee, that it is the equal of any — imported into the United States.

We, of course, expect to reimburse you for your assistance in specifying our brand of —. Full particulars as to commission we will allow you for specifying our — will be furnished upon application.

Hoping to hear from you, we are,

Yours very truly,

[COPY.]

WACO, TEXAS, September 20, 1890.

MESSRS. — :—

Dear Sirs,— Your letters were duly received, also samples of — which is well coated and I think good material. But the coating in your letter I heartily deprecate.

Material-men who offer commissions as inducements to architects to specify their goods are damaging not only their own interests but those of the architect, and the property owner.

Permit me to say that I am not for sale. You may have had in your mind the W. W. Dudley of Indiana, of "blocks of five" reputation, you will find him at Washington, D. C. Respectfully,

W. W. DUDLEY.



[Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.]

THE UNIVERSITY CLUB-HOUSE, WALNUT STREET, PHILADELPHIA, PA. MR. WILSON EYRE, JR., ARCHITECT, PHILADELPHIA, PA.

[Gelatin Print issued with the International and Imperial Editions only.]

THE materials used on the exterior of this building are mottled buff brick and light sandstone.

ACCEPTED DESIGN FOR CHAPEL AND HOSPITAL FOR THE SOCK-ANNOSSET SCHOOL FOR BOYS, CRANSTON, R. I. MESSRS. STONE, CARPENTER & WILLSON, ARCHITECTS, PROVIDENCE, R. I.

PLANS AND SECTION OF THE SAME.

CHURCH OF THE MESSIAH, BOSTON, MASS. MESSRS. ROTCH & TILDEN, ARCHITECTS, BOSTON, MASS.

HOTEL CASTLETON, NEW BRIGHTON, STATEN ISLAND, N. Y. MR. C. P. H. GILBERT, ARCHITECT, NEW YORK, N. Y.

[Additional Illustrations in the International Edition.]

THE DEUTSCHES THEATER, PRAGUE, BOHEMIA.

[Gelatin Print.]

THE WAITING-ROOM OF THE NATIONAL POSTAL SAVINGS-BANK BUILDING, PARIS, FRANCE. M. J. BOUSSARD, ARCHITECT.

[Photogravure.]

THE COMMANDERY BUILDING IN THE IMPERIAL ARSENAL, VIENNA, AUSTRIA. BARON THEOPHIL VON HANSEN, ARCHITECT.

[Gelatin Print.]

The great group of buildings of which this is the chief exterior feature occupies, with its drill-ground, an area of a sixteenth of a square mile at the junction of the Wien Fluss and the Wiener-Donau Canal. The group, which is built of red brick and light sandstone, contains barracks for a large part of the Vienna garrison, foundries, gunshops, workshops of various kinds and a large military museum. The figure in the central niche represents Austria, and the supporting figures in the flanking turrets typify the various military handicrafts.

THE BATTLE MONUMENT AT WEST POINT.

THE Association of officers of the Regular Army known as the Battle Monument Association, has had custody of a cumulative fund devoted to the erection of a monument in memory of the officers, non-commissioned officers, and privates of the regular army killed or fatally wounded in the actions of the War of the Rebellion.

This fund having reached considerable proportions, it was concluded to proceed with the erection of the monument, and under the energetic initiative of the present Superintendent of the Military Academy, Col. John M. Wilson, the project took definite form.

At a general meeting of the Association an executive committee had been appointed in whose hands was rested a general authority, and at a meeting of this committee held in the quarters of the Superintendent a sub-committee of three members was appointed to draw up a plan of procedure. This committee adopted the following resolutions:

Resolved, 1. That this Monument shall be mainly architectural in character, with such sculptural accessories as shall be deemed fitting and appropriate by the designer.

2. That it shall afford proper space for the necessary inscriptions commemorative of its purpose.

3. That it shall be of sufficient height to give dignity to its proportions, and to harmonize with its surroundings; but that height shall not be a feature of the design as in the case of a large column or shaft.

4. That it be located upon Trophy Point upon a site to be selected by the Building-Committee of this Association, of which the Superintendent of the Military Academy and the successful competitor shall be for this purpose members, *ex-officio*.

5. That the designer shall be chosen by private selected competition. 6. That for this purpose four of the architectural firms of this country having high professional reputation shall be invited to compete.

7. That a Building-Committee be appointed consisting of four members of the Executive-Committee, which Building-Committee shall be authorized to make all necessary arrangements for such competition, to decide upon the merits of the design, and to supervise with the Superintendent of the Military Academy, its erection, the Superintendent becoming for this purpose, *ex-officio*, a member of the committee, and its Chairman.

8. That the Building-Committee be authorized to draw upon the Treasurer of this Association for all necessary funds, and to audit all of the accounts arising from the disbursements connected with the work, and to take any and all steps necessary to its completion.

9. That, upon the completion of the monument the Building-Committee, the Superintendent being *ex-officio* a member thereof, shall arrange for proper dedication exercises and ceremonies.

10. That, upon the selection of the accepted design, a meeting of the Association shall be called and the drawings exhibited.

11. That, upon dedication, the monument shall be presented to the Military Academy of the United States, and shall, upon acceptance, be turned over to the proper military authorities.

12. That upon the completion of these duties the Building-Committee shall turn over to the authorities of the Military Academy all vouchers and papers relating to its functions, and the action of the Battle Monument Association for file with the records of the Military Academy, and thereupon shall be discharged from its functions.

13. That the Superintendent be requested to obtain from the authorities at Washington the necessary names and data for inscription upon the monument.

This report was adopted, and the Building-Committee therein described was appointed with full powers to carry the work to completion. It at once proceeded to make selection of four firms of architects to take part in the competition, being guided in its choice by expert advice and general reputation, and issued an invitation to compete, from which we extract the following paragraphs:

The history of the action of which this proposed competition is the outcome is briefly as follows:

During the War of the Rebellion certain officers of the regular army stationed at West Point conceived the idea of commemorating their brother officers of the regular army killed in that struggle by a monument erected there, and to that end formed an association known as the Battle Monument Association with headquarters at the Military Academy. Letters were sent out to all officers of the regular army inviting contributions in proportion to the rate of pay received. The fund resulting was placed in the custody of the Treasurer of the Association, invested in government bonds, and has increased through accrued interest to its present size. Congress was petitioned to further the project by appropriating a certain number of bronze cannon, and acted by placing at the disposal of the Association fifty bronze guns captured from the rebels. It was proposed to make the monument commemorative as well of the non-commissioned officers and privates, which proposition was adopted with the proviso that the description should be by number and regiment only. The Executive-Committee of the above described Association in which was invested plenary power both to act and to expend the funds accrued, in turn has transferred its authority to a Building-Committee from which this circular emanates, and which purposes to push the project to completion. This monument, therefore, is distinctly commemorative of the officers, non-commissioned officers and privates of the regular army of the United States killed, or who died of wounds received in action, during the War of the Rebellion.

In regard to the bronze guns available for use in the work, the committee desires it to be understood that they are at the disposition of the architect *en masse*, to be used to defray the cost in a finished state of all bronze decorations used upon the monument. In other words, the committee conceives it to be a legitimate use of this material to employ it not only as material but to defray the cost of its own working and designing. Should, however, the cost of working exceed the value of the guns, the excess will be paid from the general fund. It will follow

therefore that bronze decorations should be a considerable feature of the design in order that all of the guns shall be available for use. As these guns are in themselves commemorative and historic, the committee suggests that a certain number of them — say ten or more — be retained intact for direct decoration in the monument, or as accessories on the plinth and stylobate, or in the grounds in the immediate neighborhood.

INVITATION TO COMPETE FOR A MONUMENT TO BE ERECTED AT WEST POINT, N. Y.

I. This monument is to commemorate the officers and soldiers of the regular army killed in the War of the Rebellion. It is to be erected upon the land of the Government reservation at West Point, N. Y., the site being that portion of the plain in front of Cadet Barracks commonly known as Trophy Point, the exact spot to be hereafter designated.

II. The general character of the design is to be architectural, with such sculptural accessories as the taste of the designer may deem fitting and appropriate. It is to be of such proportions as to provide for the display of bronze tablets sufficient in number and dimensions for the inscription of the names of officers and the designation by number and regiment of non-commissioned officers and privates.

The material is to be stone and bronze, the nature of the stone being optional with the designer.

III. The funds available for this construction proper are \$50,000 in cash. There are, also, at the disposal of the Association fifty (50) bronze cannon, which may be employed in any way deemed proper, presented for the purpose by the following joint resolution of Congress:

Joint Resolution (No. 37), approved April 28, 1870:

Resolved, etc., That the Secretary of War is hereby authorized and directed to deliver to Prof. A. E. Church, Treasurer of the Battle Monument Committee, fifty bronze guns captured from the rebels, to be used in the construction of a monument at West Point, N. Y., in memory of the officers and soldiers of the regular army who fell in the late war, and in the ornamentation of the grounds around said monument. — 16 *Stats. at Large*, 373.

IV. You are invited to submit to this Committee of the Battle Monument Association of West Point a design for the above-described monument in competition with those of the following-named firms of architects, Babb, Cook & Willard, New York; Carrère & Hastings, New York; R. W. Emerson, Boston; McKim, Mead & White, New York, on or before September 15, 1890, under the following conditions:

V. Conditions:

1st. The design to be shown in the following drawings:

1. A perspective view in color or monotint, at your option, on a sheet not smaller than 34 x 48 inches, in proper relative proportion.

2. A plan.

3. Elevation of the principal front to scale of 1" to 4', in line.

Should any of the other fronts possess special features of importance, separate elevations in pencil to same scale, showing these features, should be submitted with principal drawings.

Each drawing is to be marked with a motto or device, and the whole sent in a sealed package, accompanied by a sealed envelope containing name and marked with device on outside, to the Chairman of this Committee, Prof. Peter S. Michie, U. S. Military Academy, West Point, N. Y. A complete description of the design, with explanation of its material and construction, should accompany the drawings.

2d. For the purpose of selection only, the Committee will associate with itself three gentlemen — sculptors or architects — to be chosen from a list of names submitted by the competitors themselves, each competitor submitting three, not more than one to be taken from the list of any one firm. These associates, for the purpose named, shall each have a full vote, and the result of the vote shall be decisive as to the selection or rejection of the designs submitted.

3d. No designs other than those submitted by the firms named in the list above given shall be admitted in this competition, nor shall any designs from any source be considered by the Committee until after the decision in this instance. After the decision, the rejected designs will be returned to their respective owners, and no use in any way will be made of them or any of their features unless by arrangement with and consent of the owner.

The accepted design is to become the property of the Association, and the construction of the monument is to be in the hands and under the direction of the successful competitor, who shall be responsible for its proper and satisfactory completion according to the terms of the detailed specifications and drawings accepted.

It shall be the right of the Superintendent of the Military Academy to appoint a competent officer, who shall inspect the work during its progress, and who shall have the power, by direction of the Superintendent, to require a conformity in all particulars with the requirements of the specifications. He shall have the right, as above, to stop work at any stage of progress, should he discover any failure on the part of contractors to fulfill such requirements, until the architect can enforce them. His function shall not be construed to interfere in any way with the freedom of action of the architect, or of any person deputed by him to represent him as supervisor or clerk-of-the-work.

The sum of two hundred and fifty dollars (\$250) will be paid to each competitor as a compensation for time and labor in the preparation of the designs submitted in competition, except that the successful competitor shall receive the usual compensation of five per cent upon the total cost of the monument, which sum shall include cost of all drawings prepared by him. Should the nature of the design involve special sculptural features requiring separate and original designing by the architect, special arrangements for compensation will be made. Sculptural designs not furnished by architect must be contracted for by him and paid out of the fund for general cost of monument as part of the regular expenses.

4th. The design must be carefully calculated to come within the limits of the amount available for construction, as the cost of the monument can in no case exceed fifty thousand dollars, exclusive of the value of the bronze guns. To this end, an estimate of cost should accompany each design, and, upon acceptance, a detailed estimate of cost must be submitted to this Committee. Should any excess result in this detailed estimate, or in the bids for construction, the design must be so modified as to come within the required limits.

5th. The Committee reserve the right to reject all designs under the conditions of payment and return, as specified above.

6th. For the purpose of definitely locating the site only, the Superintendent of the Military Academy and the successful competitor shall become *ex-officio* members of the Building-Committee, and for the purpose of superintending the construction after selection, and the final arrangements for dedication, the Superintendent of the Military Academy becomes a member of the Committee *ex-officio* and its Chairman.

VI. The Committee herein referred to consists of the following-named officers of the Military Academy: Prof. Peter S. Michie, Chairman; Prof. Charles W. Larned; Prof. Edward W. Baas, *Treas.*, Battle Mon. Ass.; Prof. James Mercur.

They are appointed by authority of the Executive-Committee of the Battle Monument Association.

This Association has invested the Executive-Committee with full powers for the expenditure of the funds herein described, and for the determination of all matters pertaining to the erection of this monument. It has delegated to this Committee authority for action in the premises as above described, and all communications relative to the matter in hand will be addressed to it through its Chairman, Prof. Peter S. Michie.

After formal acceptance on the part of the firms addressed, their members were invited to visit West Point as the guests of the Building-Committee, to inspect the site. After a lunch in the rooms of the officers' mess, the ground was carefully gone over, and an exact location determined on by a general vote of the committee and the

competitors. As the date of competition matured, a selection of associates was made by the Building-Committee from the list of candidates nominated by the competitors. These associates became for the purpose of choice, members of the committee with a full vote, and the action of this jury was final. The names of these gentlemen, who at once most courteously consented to serve, are R. M. Hunt, President American Institute of Architects; Augustus St. Gaudens; Arthur Rotch.

On the date of competition they were invited as guests of the Building-Committee to visit West Point, and after lunching at the mess and an inspection of the site, the jury proceeded to examine the drawings which were hung in a specially arranged room under a brilliant light. After a long and careful study a final vote resulted in the selection of the design marked "Monolith"—the motto of the firm of McKim, Mead & White. The results of the competition were very gratifying and the merits of all of the designs so conspicuous as to render final decision a matter of nice discrimination based upon many considerations.

It is proper to state that the successful design is to undergo some modifications in the details of its decorative features, as well as in the relative proportions of its base and shaft. Its designer, Mr. White, is giving it that careful study as to details which the pressure of other work rendered impossible before the expiration of the time limit. It is hoped that this monument will be completed during the summer of 1891.

C. W. L.

ACCEPTED DESIGN, MESSRS. MCKIM, MEAD & WHITE, ARCHITECTS,
NEW YORK, N. Y.

In preparing the design, we have most carefully considered the object of the monument and the site which it is to occupy.

We believe the monument should be first and foremost a martial one, distinctive in its character and impressive in its design. The beauty of its site and the surroundings seem to us to preclude any bulky or massive treatment, and to suggest rather a treatment where the impression should be produced by height supported by a base which should not interfere with graceful and artistic treatment. For this reason, we have adopted as the feature of our design a single monolithic shaft treated in the shape of a memorial column or column of victory. This form seems to us to be more distinctively martial than any other and in this form we believe it is possible to obtain impressiveness and dignity without a sacrifice of grace, at the same time preserving a distinctively architectural and monumental character. We lay great stress upon these two points, viz.: the necessity of giving the monument a martial character and the relation of the monument to its site. In our design we have had these two points continually in mind with results which you must judge. The shaft is a monolith of polished granite forty-six feet high and five feet six inches in diameter. To the best of our belief, it would be the largest polished shaft in the world. It is proposed to surmount it with a figure of Victory and surround it by eagles—a distinct mark of its national character. The shaft rests upon a circular base surrounded by flights of steps giving the greatest breadth and dignity possible to the base. The materials are the most enduring—granite and bronze.

We have received an estimate from the most reliable firm known to us upon this monument which comes within the amount available. We submit with this statement a memorandum specification and copy of this bid.

Very respectfully,

MONOLITH.

MEMORANDUM OF ESTIMATED COST OF PROPOSED BATTLE MONUMENT.

Messrs. Norcross Brothers' estimates for granite work.....	\$41,000.00
Our estimate for figure.....	5,000.00
Our estimate for eagles.....	4,000.00
	\$50,000.00
Value of bronze cannon to cover architects' fees and contingencies.....	\$5,000.00

DESIGN BY MESSRS. CARRERE & HASTINGS, ARCHITECTS, NEW
YORK, N. Y.

After obtaining estimates, we were induced to make an alternative design which would cost less money, and so leave more margin for such surroundings as we consider that the site demands. We have given our estimate for the monument proper without the surroundings, as these can be so easily simplified or elaborated with further study, as to make the whole come within the appropriation.

The estimates which we obtained from one of the best and leading firms are enclosed in the sealed envelope, and are as follows:

1. For the Monument proper as shown on design No. 1, without the surroundings, \$12,426.
2. For the Monument proper as shown on design No. 2, without surroundings, \$19,400.

Both of these estimates include all the labor and material for foundations, facing, carving, and rough mason-work for the core of the monument, complete in place.

In comparing our design for the monument proper with our design for the surroundings, and taking into consideration the estimates obtained, we believe that the entire monument with surroundings as shown on design No. 1 can be built for the amount appropriated. We also believe the same can be done with design No. 2, with some simplification of the surroundings. In our opinion, on the site chosen, with no background other than the sky and distant scenery, whatever the character of the monument may be, its seeming proportions will so change—apparently lessening in diameter, without lowering in height—that it will need some kind of decorative background between it and the landscape. Moreover, while the height of a classic column of such

an order as we have studied, if introduced into a building should be equal to nine diameters, we are persuaded that standing by itself, it should have seven and a half diameters, and this fact is illustrated in many examples, conspicuously in the Column of Trajan in Rome, and in the Columns Vendome and La Bastille in Paris. To illustrate further the principle of having something between the monument and the landscape: a monument in a public square, amid buildings or other surroundings, reveals its true proportions and looks better than it would in a large park.

We have, therefore, suggested a decorative colonnade as shown on plans. The shafts of the columns and piers, as also the friezes of this colonnade, would give the space asked for in the programme, to receive the names of the officers and non-commissioned officers who fell in the war.

We have obtained an estimate for the bronze guns and find that the value of the bronze is about 7 1-2 cents a pound. We have endeavored to introduce sculpture, which can be made in stone or bronze, as may be afterwards decided. The stone which we suggest and the use of which is contemplated in the estimates obtained by us, is the Indiana buff limestone. This material is beautiful and well adapted for monumental work, both in color and texture. It retains its color and is very durable, having been thoroughly analyzed and endorsed by our leading engineers.

DESIGN BY MESSRS. BABE, COOK & WILLARD, ARCHITECTS, NEW
YORK, N. Y.

The design submitted consists of a Doric column of polished granite, surmounted by a bronze figure, and having on one of its faces a bronze tablet containing an inscription stating the object of the monument. The column is set upon a raised platform, with exedras on two opposite sides. It is proposed to set in the panels of these exedras bronze tablets containing the names of the officers and the designation by number and regiment of the non-commissioned officers and privates commemorated. All the stonework is to be of granite, preferably one of the red varieties, the exact kind used being left for future decision. An approximate estimate of the cost has been obtained from trustworthy parties, and is slightly less than the sum available.

It has not been considered advisable to utilize any of the cannon in the monument itself; but it is suggested that a few can be disposed about it with suitable effect.

The design is the result of a careful consideration of the site selected and of the purpose of the monument. It aims at a character of greater simplicity and dignity than has usually been given to commemorative columns; and in pursuance of this idea the Greek Doric column has been preferred to others of a more ornate character, as the purest type known of grave architectural beauty; the polishing of the granite will add greatly to its splendor and effectiveness. This character seemed especially appropriate in this monument, which is to perpetuate the memory of men who in the simple pursuance of duty died, not only for the glory of their country, but for its preservation.

"Nec pluribus impar."

DESIGN BY MR. W. R. EMERSON, ARCHITECT, BOSTON, MASS.

The material proposed is pure white American marble.

The central feature is a triumphal arch flanked on each side by a colonnade, the whole resting upon a stone platform a few steps above the ground; the arch being intended also to open, or to frame the beautiful river view, and not obstruct it. The two fronts, the one towards the parade ground, and the one facing the river, are to be alike. The bronze tablets with the soldiers' names are to be built into the wall behind the columns, and are to be of plain simple character. Above the tablets, and sheltered from the weather by the stone ceiling of the colonnade, is designed a marble frieze three feet wide; each section being twenty feet in length; the whole being eighty feet in length. This frieze is to be designed and carved in rather bold relief by some sculptor of acknowledged artistic ability, and might illustrate scenes in the life of the soldier, such as the march, the camp, the battle, the prison, the victory and the death. In the elaboration of the scheme of this frieze, which is intended to be a large feature in the composition, the sculptor and architect are to work together. The inscription upon the main frieze above the arch is to run continuously around its four sides, and is to be in English and not in Latin.

The inscription suggested is as follows:—

"To the brave Soldiers whose military life began on this spot, and ended in death in their country's defence, their surviving comrades dedicate this Memorial."

ESTIMATED COST.

Marble and granite, and labor.....	\$39,000.00
Sculptured Tablets.....	8,500.00
Bronze.....	2,500.00
	\$50,000.00

The above estimate has been reached by changes in the design as it was developed. It is, of course, impossible to fix the value of the sculptor's work, but it is believed this amount will go far towards a satisfactory and artistic result in his hands.

DESIGN "IN MEMORIAM."

DESIGN FOR WINDOW AT GILSBOROUGH, NORTHAMPTON, ENG.
BY MR. E. BURNE-JONES, A. R. A.

PART OF A WINDOW FOR HOUSE AT NEWPORT, U. S. A. ERIC
THE RED.—WIFE OF THORFINN KARLSEFIRE.—THORFINN
KARLSEFIRE. DESIGNED BY MR. E. BURNE-JONES, A. R. A.

DESIGN FOR BERMONDSEY FREE LIBRARY. MESSRS. NEWMAN & NEWMAN, ARCHITECTS.

THIS was a design submitted in the recent competition for a free library at Bermondsey, and which we have reason to believe was one of the finally selected seven or eight out of a large number of designs, the assessor's award being overthrown, and a design selected which broke the conditions of the competition, and could not be carried out for the stipulated price. It was expressly stated that the building should not have lights looking over the adjoining property, which it will be seen was avoided in this design, and upon reference to the plans which will explain themselves. The selected design covered the whole, or nearly the whole of the site, and had windows shown overlooking the adjoining property.

The design illustrated was estimated at the sum of £5,000, not including some of the fittings to the upper and additional book stores, designed with the necessary space for about 25,000 volumes when completed.

HOUSE AT SURBITON, ENG. MR. THOMAS R. RICHARDS, ARCHITECT, LONDON, ENG.

THIS house has been lately completed.

METHODS USED FOR GROUTING THE NEW YORK AQUEDUCT.¹

ABOUT the month of March, 1888, the contractors for the construction of the New Croton Aqueduct for the City of New York commenced to repair defective work in the Aqueduct. One of these defects was a lack of cement-mortar in the rubble masonry between the arch and the surrounding rock. The contract forbade the use of grout in the construction of the work; but for some reason or other, not necessary to mention here, grouting was resorted-to to remedy the defective backing.

At first large funnels, specially constructed for this purpose, were used as a means to carry the grout through the brick walls and deposit it in the backing. The brick lining is, as a rule, twelve

inches thick. Through this lining, holes about two inches in diameter were drilled into which the spout of the funnel was introduced. The receiver of the funnel was vertical, i. e., the discharge-pipe and receiver were at right angles to each other. The funnel was made from ordinary commercial tin, and had a capacity of a common pail or bucket. The cement and sand were mixed at the top of the shafts in the proportion of 1 to 1, and lowered in buckets holding about six barrels of mixture. At the bottom of the shafts the mixture was dumped on a platform, then shovelled into barrels and loaded on wagons with solid wooden wheels 30 inches in diameter and 4 inches thick, the tread being bevelled to correspond with the invert. One wagon would hold nine barrels, which was then drawn to the place of grouting by one mule. About three barrels of this dry mixture was then placed in a box, and water added to make a mixture about the consistency of cream; this then was bailed out of the box and handed to a man standing at the funnel, who would pour it into the funnel until the hole refused to take any more.

This method of grouting was continued about two weeks, when the City Engineers ordered the contractors to cease the use of funnels and resort to pumping in the grout. The contractors, in their usual docile spirit, acquiesced very gracefully, and looked about the market for a suitable pump that could do the work. After a long and careful search, the pump (shown in the accompanying photograph and blue print) was adopted. This is only an ordinary double-acting, deck fire-pump, manufactured by W. & B. Douglas, Middletown, Conn., and costs complete, with all the fittings, about ninety dollars.

The pump was usually bolted on to a narrow truck about 3 feet wide, having wooden wheels about 20 inches diameter, and was just long enough for the men to stand on when working the pump. The pump was placed about the centre of the tunnel, and the grout box on either side. A suction-hose (2½ inches diameter), varying from 6 to 9 feet in length, was connected with the pump on one side, and the other end placed into the grout. The discharge-hose, 2 inches in diameter and 20 feet long, was connected to the pump opposite the suction-hose. The pump could grout a section about 50 feet in length without moving the box. The discharge-hose was fitted with a nozzle of ordinary 1½ inch gas-pipe about 15 inches long, which was inserted into the holes drilled into the brick arch. The discharge-hose was guaranteed to stand 200 pounds pressure per square inch; some of the hose burst. Several tests were made at the

nozzle of the hose with an ordinary steam gauge, and while not altogether satisfactory, a pressure of 110 pounds was obtained.

An important feature of the grouting was to know where to place the drill-holes so that the maximum effect of the grout could be attained, or, in other words, to be certain that the whole defective work would be grouted. To derive this knowledge it was necessary to go back and ascertain how this work was originally built. This was found to be as follows: there were eight courses of brickwork laid in the side walls, then the work stopped until the space between the brickwork and rock lining was filled with rubble masonry, then eight more courses of brick were laid, and the space behind filled with rubble masonry, and this operation was repeated to near the key. In cutting into the side walls it was discovered that wherever the rubble backing was found to be defective or having a lack of mortar, there was generally a heavy coat of mortar over the entire backing at the level of the 8th, 16th, 24th, 32d, etc., courses, so that no grout could rise above the layer if put in below. It was therefore decided to consider the defective work as lying in channels about eight courses high, into which grout would have to be injected separately. Drill-holes were therefore placed at the following courses, viz.: the 6th, 14th, 22d, 28th, 36th, 45th, 51st, 60th and 67th, and 75th, or key.

The holes were drilled every 10 feet, but were staggered, that is, at one station the 6th, 22d, 36th, 51st and 67th were drilled, and 10 feet beyond the 14th, 28th, 45th and 60th and 75th were drilled. This was done for several reasons. One was it would not disfigure or weaken the wall as much as drilling them all at one place; and again, as these 10 holes would cover a space 20 feet in length it would be better to grout half the number of holes every 10 feet than to grout the whole number of holes every 20 feet, as occasionally a course of cemented work would intervene in a distance of 20 feet. A system had to be adopted so that the foreman and laborers in the tunnel could work intelligently and records be kept accurately.

The drillers would, as a rule, keep about 300 feet ahead of the grout pump, so that in case a cavity behind the arch would be disclosed by the drill, a hole about 18 inches square would be cut through the brickwork and the cavity filled with the proper material. The photograph taken at station 447 x 50 east wall shows the channels of defective masonry and the coat of masonry far better than the best description.

The plan accompanying this also shows the form of tunnel, the courses of brickwork from the intersection of the side walls with the invert to the key, the thickness of brickwork, the position of the drill-holes longitudinally and transversely, also the backing behind the arch with the coating of cement mortar every eight courses.

About 15 per cent of the 13 miles of the tunnel under my charge has dry packing above the 55th course, or above a tangent to the extrados of the key, which, of course, was not to be grouted. To be certain that no grout would go into the dry packing tell-tale drill-holes were put through the arch at the 55th course, five feet on each side of the grout-hole, and instead of drilling the regular 51st course the 49th course was drilled, so that the grout would not first enter the dry packing, and as soon as the grout ran out of the tell-tale holes the pump would be stopped. Frequently the pump could grout a space 50 feet long into one hole, the grout running out of most of the holes for 25 feet each way. These holes would be temporarily closed up with wooden plugs kept on hand for the purpose. These holes would all be subsequently opened again, cleaned out and the pump tried on them. About 10 per cent of them would take grout again. About every 20 feet on each side of the tunnel weepers or drains were built behind the arch opening through the brick side walls at the bottom. These had all to be closed up with bricks and mortar until the grouting was finished, or else the grout would run out into the tunnel as fast as pumped behind the arch.

Seven men constituted a grout gang—1 foreman, 4 men on the pump, 1 hoseman, 1 stirrer or agitator. When the pump commenced to work hard, the foreman and hoseman would both "lend a hand," making the grout go in or burst the pump. The maximum amount pumped in one shift of 10 hours was 280 barrels of mixture, representing 120 barrels cement. The largest number of barrels of grout pumped into one hole was 865, then the pump was stopped. For all we could tell, Westchester county was being filled through a fissure in the rock. One hundred barrels of mixture pumped in as grout constituted a fair or average day's work of 10 hours, and toward the completion of the work 15 or 20 barrels were all that could be done on account of so much shifting of the pump and grout box, the holes generally refusing grout.

The greatest number of pumps in use at one time was 23, forcing in about 2,326 barrels of mixture in the form of grout, representing 1,000 barrels of cement and 1,000 barrels of sand, the standing order for cement being 800 barrels.

We had altogether 27 pumps on hand, keeping three or four extras ready to take the place of break-downs.

The total number of barrels of cement used in grouting was about..... 165,000

Amount of sand used..... 165,000 barrels.

Amounting to a total of..... 330,000 barrels, before mixing, which when mixed dry made 382,800 barrels (1 barrel cement and 1 barrel sand making 2.32 barrels of dry mixture). This when mixed with water and converted into grout made 317,000 barrels.

¹ A paper by P. F. Brendlinger, read November 2, 1889, before the Engineering Club of Philadelphia, and published in the *Proceedings* of the Society.

The pump used for this work unquestionably did the work, and that with perfect satisfaction so far as the quality and thoroughness of the work were concerned; but in my opinion there are far better pumps in the market that are better suited for such work, doing the work more economically and with greater rapidity. Before work of any kind is done a contractor calculates the magnitude of the same and arranges his plant accordingly. So it is with repairing work: he should first determine the extent of his defective work, which can be done very closely in various ways, then arrange his plant.

ETHNOGRAPHY AT THE WORLD'S FAIR.

THE plan for an ethnographical part of the World's Columbian Exhibition, prepared with great care by Mr. F. W. Putnam, Peabody Professor of American Archaeology and Ethnology at Harvard University, promises to give as complete an illustration of early architecture as of other aspects of ancient life in this country. As now conceived, the building to contain these collections showing the habitations, arts, industries and customs of the inhabitants of America at the time of Columbus as well as in prehistoric times, will be of a style suggestive of its purpose. This will be a permanent structure, erected by the local Commissioners of Chicago as the nucleus of a great ethnographical museum. A portion of its exterior, according to the approved suggestion, will be a fac-simile of one of the great stone structures common in Mexico, Central America and Peru in prehistoric times, and of which the ruins in some cases are so far preserved as to show fully their structural plan and ornamentation.

The summer and winter habitations of the Esquimaux will be shown, and of each of the principal northern tribes of the west side of the continent, of others bordering on northern regions, and in the same manner, as fully as possible, the types of the structures in the West Indies, the eastern portions of North America, of Central America and of South America to the low order of civilization in Terra del Fuego, and, with the rest, models of earthworks, some of which were for fortification, places of worship, or enclosed or walled towns.

The important mound of Cahokia, Illinois, is one of the number specified for representation, holding, as Professor Putnam concludes, the same relation to other works of antiquity in the Mississippi Valley as the Pyramids of Egypt to other works of man in the Valley of the Nile. The serpent-mound of Ohio, an earth structure 1,400 feet long, a symbol of ancient serpent worship in North America, will be similarly illustrated.

Models of the ancient cliff-houses and pueblos of Colorado, Arizona and New Mexico will be shown, and a small cliff-house of full size and a portion of an ancient pueblo reproduced, for comparison with habitations of other portions of America—and for special comparison will be shown portions of inhabited pueblos.

The most remarkable feature of the series will be in the reproductions of parts of the great buildings of stone in Old Mexico, in Yucatan and Peru, of which little has been known except to special archaeologists. For this purpose the taking of casts of portions of some of the more important ruins is suggested, providing for actual reproductions, with which will be added plans, paintings and photographs, exhibiting details of these immense structures, through which the greatest development in ancient architecture in America is illustrated. Large tablets of stone and of wood from the interiors of buildings, and of walls of rooms, in many instances containing pictographical and hieroglyphical records of great importance and interest, will be shown as an additional series. L.



[The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.]

SHINGLED VALLEYS.

SAN JOSE, November 19, 1890.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Could you kindly give me some idea of the construction of the shingled valleys so much used in the shingled roofs built in your vicinity—whether or not the valleys are tinned beneath the shingling and also of the radius of the furring.

Could you also give me some information relative to the construction of "half-timber" houses. I am now working upon plans for a house which will be built in that construction, providing it does not cost too much. The scheme proposed is to use 4" by 6" posts 4' 0" on centres with boards nailed on the inside and plastered on inside and on outside between timbers, which will be grooved to receive plastering: floor-beams will be 6" by 10", 4' 0" on centres, 18' 0" span, floors 2" thick, furred off 1" and plastered below between beams. You may perhaps notice that this scheme is somewhat like one proposed by Mr. Edward Atkinson, for the construction of dwellings, but which I had worked out before I saw his drawings. Of course

this method will not give as much resistance to fire as that published in your paper, but still it would, I think, be better than ordinary studded walls and hollow floors.

Aside from practical advantages, the scheme is working into very good proportions, and above all (from the artistic point of view), it will be "honest," comparatively at least.

Do you consider this a feasible plan?

A reply to these questions would greatly oblige,

MORRIS M. BRUCE.

[The shingled valleys are made in all ways, and with all radii. Some are tinned, and boarding and shingles put on over the tin, and some depend on the shingles alone. The radius of the curve depends on the width of the shingles used.]

In regard to the half-timbered work, you do not say how or where the outside plastering is to be put on, but only that the timbers "will be grooved to receive it." If the plaster surface is not flush with the face of the timbers, the braces and horizontal timbers must be leaded to throw off water. In any case, if the nailings are four feet from centres, it would be well to use something stiffer than boards as a backing to both the inside and the outside plastering, unless the house is intended to be very light. The English half-timbered work has the timbers usually less than a foot apart, and often only a few inches. The modern architects lath the inside of the timbers set in this way, and plaster all over. Then they nail fillets on the sides of the timbers, at about half their depth, and lath and plaster again, as back-plastering is sometimes done in our Eastern States; and form the outside plastering by rebating the timbers about an inch deep, lathing in the rebate, and plastering flush with the face of the timbers. This makes a tolerably tight wall, much more so than the ancient practice of filling-in between the timbers with masonry, which is now rarely used for dwelling-houses.

As to your floors, you do not say how many stories of 6" by 10" timbers you propose to carry on your 4" by 6" posts, but we trust there will not be more than one, and, at 18 feet span, we would much prefer, even then, to use a 6" by 6" post.

Your scheme for furring and plastering on the underside of the planking is by no means new, nor are we sure that the whole construction, as you describe it, would meet with much commendation from Mr. Atkinson; but it will look picturesque, if well managed. Probably you will have to put mouldings on the sides of the beams, under the plastering, to cover the open joint which will appear there when the timbers shrink.—EDS. AMERICAN ARCHITECT.]

THE BARRACKS OF THE SAXON CHASSEURS.¹

PHOENIXVILLE, PA., November 22, 1890.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—I am in receipt of your note of the 19th inst. with inclosure of gelatine print of barracks building at Dresden, showing my interpretation of your descriptive remarks to have been correct. Thinking that you may perhaps be glad to print some explanatory notes in reference to your print, I beg to submit the following, taken from the *Deutsche Bauzeitung* of January 26, 1884. I also send you a tracing showing the location of the barracks and surroundings which you are at liberty to reproduce in the *American Architect*.

This fine building was erected during the years 1880 to 1882 as a permanent home for the second battalion of Saxon Chasseurs (*Jäger zu Fuss*), the full strength of that body being one thousand men. According to the programme furnished by the Saxon Secretary of War and the Military Building Department, the main front of the edifice was to face the river Elbe to the considerable length of 440 feet. There were to be two wings extending back 256 feet each, at right angles, inclosing with the drill-house, at the rear of the grounds, a vast open court-yard, 335 feet long by 128 feet wide. It was required that the façades of the building must be designed in a dignified style befitting the prominence of their location, and at the same time, not out of keeping with the façades of the handsome apartment-houses facing on the opposite side of the imposing square forming the entrance to the new stone-arched bridge over the river Elbe. The layout of this fine and modern portion of the city of Dresden is the result of a competition among the architects of the city which took place in 1878 at the invitation of the municipality. It fortunately so happened that nearly all the property shown in our sketch was in the hands of one party, which circumstance made it possible to design the façades of the large apartment-houses along the Sachsen Platz and Sachsen Allée with a unity of purpose which has resulted in the creation of a very impressive architectural ensemble. The Sachsen Allée which has already become an important thoroughfare, is 131 feet wide with four lines of shade trees, dividing the roadway into five distinct tracts, those next to the central carriage-way being reserved for promenading and children's play-grounds.

The barracks building is a four-story building with attic, only the central portion of the river front and the four corner pavilions being carried up one-story above the rest. The heights of the stories are as follows: basement 13 feet, ground-floor 15 feet, second and third stories, 14 feet 3 inches each, fourth-story in centre and corner pavilions 13 feet 9 inches. The floor of the basement is raised 20 inches above the maximum high-water level of the river. The building-ground being low meadow land, it was found necessary to construct foundations of considerable depth, the bottom of the latter lying 21 feet below the surface of the street. The building material used, was sandstone from Saxon quarries obtained from some point on the Elbe river and towed thence by boat to the building site. This stone which occurs in beautiful rich yellow tints of varied shading, is used largely not only in Dresden, but also in many parts of Central

¹ For illustration, see the *American Architect* for November 15, 1890.

Germany. The roofs and helmets of the many towers and towerlets are covered with slate from English quarries.

The basement contains the kitchen, dining-halls for the soldiers, tailoring, shoemaker's and other shops, shower-baths, swimming-baths for the men, finally the heating chambers.

The ground-floor contains the various offices, the guard-room, the jail, the casino for the non-commissioned officers, instruction-rooms, and the officers' stairway.

In the second and third-stories, we have the officers' casino, dwellings for three married officers with their families, the rooms of the men, also dormitories and lavatories. In the top story of the centre of the building, there are apartments for four unmarried officers. The top floors of the corner pavilions serve as magazines for uniforms, boots and other material. The officers' dining-hall which occupies the place of honor and which is duly accentuated in the exterior of the façade, is decorated in the style of an old German hunting castle with characteristic reference to the arm (Chasseurs) for which it is intended.

Numerous stag-heads, boar-heads, antlers and other trophies of the chase, the property of, and obtained by, officers of the battalion, have here found their places. A stone balcony runs the full length of the dining-hall. From here one may enjoy the beautiful panorama of the city on one hand and the distant summits of "Saxon Switzerland" on the other. Two massive broad stairways of granite, located on the inner corners of the court-yard are the means of communication from the latter to the quarters of the several companies. They are for the use of the men only. The architects were Messrs. Hanel and Adam, who are also the designers of the apartment-houses in the vicinity of the barracks. The effect produced by the exterior is that of dignity and massiveness becoming the purpose of the structure, yet not without an air of gracefulness displayed in the notably successful contours of the corner pavilions.

Hoping you may find the above useful, I remain,
Yours very respectfully, F. G. LIPPERT.

NOTES AND CLIPPINGS

RISE IN THE COST OF PLATINUM.—Apropos of what was said in the *Times* recently concerning the increased cost of platinum, it is reported that the electric-lighting companies are preparing to increase the cost of incandescent lights. Until some substitute for this valuable metal can be found, this advance must surely follow. In each sixteen-candle-power lamp there are four to eight grains of platinum. If six grains are taken as the average, one ounce will be used in eighty lamps. Based on the increased use of incandescent lights within the last two years, it is safe to assume that the demand for sixteen-candle-power lamps, or their equivalent, in the year 1891 will be 10,000,000. This means a demand for 125,000 ounces of platinum, which, at the present price, \$17 per ounce, will amount to \$2,125,000. The probable income from these lamps at the present rate of toll will amount to about \$6,000,000, while the cost of one item of their composition alone is one-third of the total income. Platinum is going up all the time, and a fortune is in store for the man who finds its substitute in the making of incandescent lamps. — *N. Y. Times*.

A RUDE LIGHT-STANDARD.—M. Steinert, whose famous collection of rare old musical instruments has been exhibited in various cities and is now at Washington, a despatch from New Haven says, has just become the possessor of a rude light-standard of the fifth century. This article is not a candlestick, for it antedates the age of candles. It is about a foot in height, made of iron and wood. A rude and rusty rod of wrought-iron is driven into a block of wood, which, though very aged probably is not the original block that was cut out for the implement. The rod supports a tool which works on the scissors principle, one end being used for nippers. One of the iron rods extends backward and has a huge iron for a weight to hold it down. The firebrands were placed in the nippers and held there by the weight. One material which was used for illuminating in the days of this instrument was a sort of vegetable candle that grew in swamps. The ends of this were dipped in grease and set on fire, the centre of the candle being placed in the iron jaws of the standard. This was the best method of illuminating at that age. The instrument was presented to Mr. Steinert by a lady in whose family in Wales it has been kept for generations. — *Philadelphia Telegraph*.

SAWING PILES UNDER WATER.—The 100 piles, driven in a space of twenty-eight feet square, for the foundation of the pivot pier for the swing span of the Light Street Bridge, were cut off fifteen feet six inches below mean low tide, on Friday afternoon and Saturday. The actual time in cutting, moving machine and getting pile-heads out of the way was seven hours and thirty-one minutes. The shortest time consumed in sawing off one pile was five seconds. The machinery for the submarine saw attached to the pile-driver was designed by John W. Bollman, engineer in charge, and worked to perfection. The diameter of the circular saw is fifty-four inches, and it was run at the rate of 425 revolutions per minute, causing the cutting edge to travel over 6,000 feet per minute. — *Albany Express*.

WHAT IS A HORSE-POWER?—When men first begin to become familiar with the methods of measuring mechanical power they often speculate on where the breed of horses is to be found that can keep at work raising 33,000 pounds one foot per minute, or the equivalent, which is more familiar to some mechanics, of raising 330 pounds 100 feet per minute. Since 33,000 pounds raised one foot per minute is

called one horse-power, it is natural that people should think the engineers who established that unit of measurement based it on what horses could really do. But the horse that can do this work does not exist. The horse-power unit was established by James Watt about a century ago, and the figures were fixed in a curious way. Watt found that the average horse of his district could raise 22,000 pounds one foot per minute. This, then, was an actual horse-power. At that time Watt was employed in the manufacture of engines, and customers were so hard to find that all kinds of artificial inducements were necessary to induce power users to buy steam engines. As a method of encouraging them, Watt offered to sell engines reckoning 33,000 foot-pounds to a horse-power. And thus he was the means of giving a false unit to one of the most important measurements in the world. — *N. Y. Times*.

TRADE SURVEYS

It is impossible to present a correct estimate of the commercial and general business situation without more or less reference to the financial features of the situation. There is a great deal said in the public press upon the question which is either untrue or has no application to the real difficulty before us. Financiers and business men are all eagerly watching for improving symptoms and for an increasing supply of currency. Gold shipments are expected from Europe; in fact, one or two shipments have already been made. The devices resorted to by the banks of some of the larger cities have been of some benefit. The shovelful of money thrown out by the Treasury Department will allay the fever a little; the return of a good deal of money from the interior will also help. The pending meeting of the presidents of Western trunk lines at New York gives hope to railway managers, banking interests, speculators and to business men generally; besides all this, a liquidation is in rapid progress beneath the surface. There are, it is true, a good many unfavorable symptoms; there are some matters which do not attract the attention they ought to, one of which has been frequently referred to in this column; namely, the fact which is disputed by money-lenders generally, that there is not a sufficient supply of money. The schemes introduced in Congress for an increase express the sentiment of money-borrowers chiefly. Whatever legislation takes place this winter, if any is reached, will no doubt be controlled by the money-lending interest, instead of by the money-borrowing interest. The money-lenders will aim to tide over the present depression with as little interference with existing conditions as possible. It is probable that measures will be favorably considered to purchase \$13,000,000 worth of silver, to give 100 per cent to the national banks on bonds, and to allow importers until June 1st to take goods out of bond. It is not a question of confidence, as so many people are saying; it is a question of a deficient supply of a circulating medium, and failures will continue until this is remedied. The depression will not be altogether an unmixed evil; the spirit of speculation has been checked; it might be said that too much money has been rushing into unproductive enterprises; that is a question which no one can decide. Distribution of capital throughout the world has been going on during the past two or three years at a galloping pace. One authority in England states that in two years \$250,000,000 of capital has been transferred from Great Britain to the United States. We all know of the extent of the investments of British capital in South America, and of the outcome of these investments at this time. There is a remarkable movement of capital in Europe and from Europe. All the great European banks are obliged to enter upon a general house-cleaning to see where they stand. New conditions and new requirements are manifesting themselves all over the monetary world, and are making themselves felt. From this out, a broader and more comprehensive and more statesmanlike management will be necessary. The distribution, or rather the equalization, of capital throughout the world may be checked here and there, but the mighty forces behind will drive it out into new fields from year to year. The United States will continue to attract its full percentage of capital, especially when certain evils are remedied. The railway situation will in all probability be improved, and it will be taken out of the power of irresponsible railway managers to do harm. The industries have been very little affected as yet by the scarcity of money. Manufacturing establishments have not been shut down; the labor force has not been decreased; production has not been restricted, except for usual causes not connected with present influences. The purchasing of raw material, and of supplies, merchandise, machinery and equipments, is going on about as usual, the only qualification necessary being that smaller stocks are purchased. The smaller industries are particularly active, shop-work is pushed vigorously everywhere. It should be particularly noted that there is a heavy demand for machinery of all kinds; there is also a remarkable demand for equipments for railways, manufacturing establishments, electric-light plants and mills. Particular inquiry has been made from reliable sources as to whether a countermanding of orders has been sent in, and it is gratifying to know that, with very few exceptions, orders placed within the past two or three months are permitted to remain; it is also a gratifying fact to be able to say that a good deal of new business is coming in from week to week. Textile manufacturers are not complaining of dulness; in fact, in some branches, as, for instance, in hosiery and knit goods, a very urgent demand is felt, and is being met. Electricians are busier than they have been since electricity became such a factor in the practical world. Mechanical and hydraulic engineers of prominence give it as their opinion that at no time have the services of this profession been in such demand as at this time. The iron and steel makers report nothing more than a little subsidence of demand, but there is contract work in hand for weeks. The anthracite coal-miners have mined one day's more coal this year than last; one coal road, namely, the Pennsylvania, has hauled 1,600,000 tons of coal and coke more this year than last. The managers of Southern roads show a heavy increase in traffic, especially in iron, ore, coal, lumber and cotton. No matter where a test is applied, the evidence of increased activity is apparent. Builders have closed operations for the year, and are already making preparations for the coming year. One favorable condition for building activity next year is that land in cities and towns is not advancing rapidly in value. Real estate authorities throughout the West say the same thing. Building material is as cheap now as it has been for a year, and contracts could now be placed for building supplies next year at the same prices as prevail to-day. To all appearances, there will be no general disturbances among the workers next spring. The present programme is to select one or two trades, and to arrest operations in them alone. The miners a few months ago expressed their anxiety to lead this forlorn hope next season, but the labor leaders do not see as much benefit in that craft winning as some other craft.



Sketch Plans in Competition

for a CHAPEL and HOSPITAL for the

Sockanosset School for Boys.

August ~ 1890.

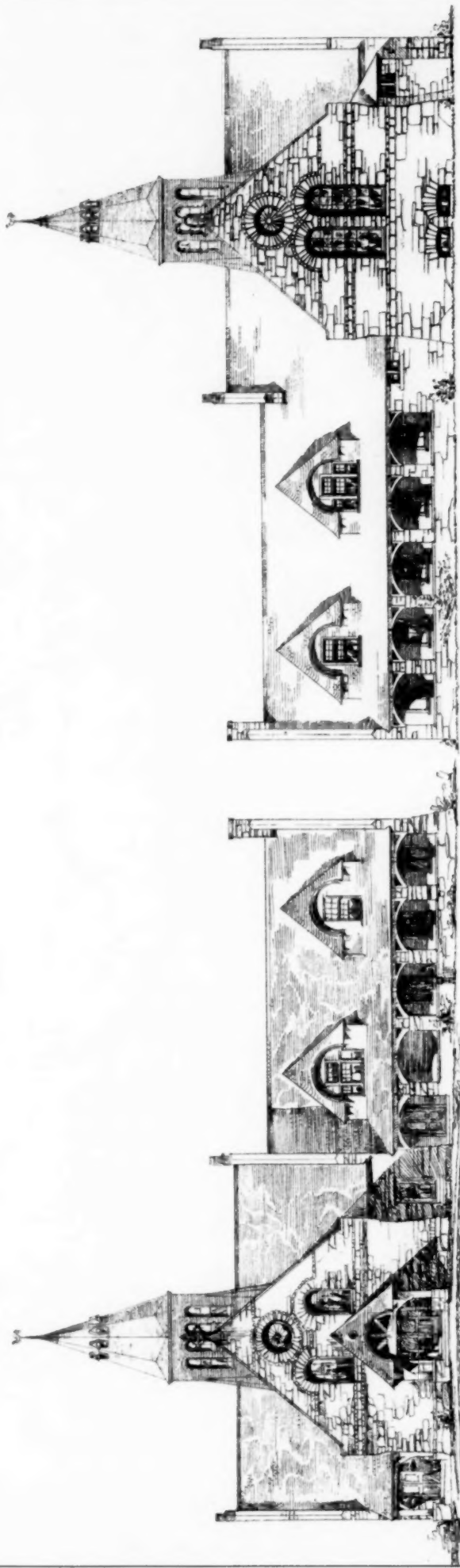
Cranston, R. I.

View from the South West



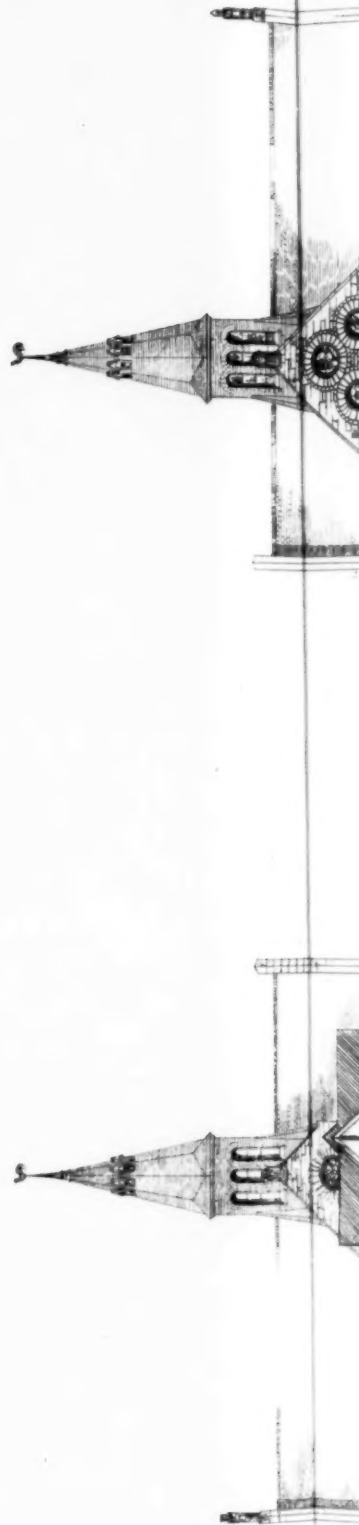
West

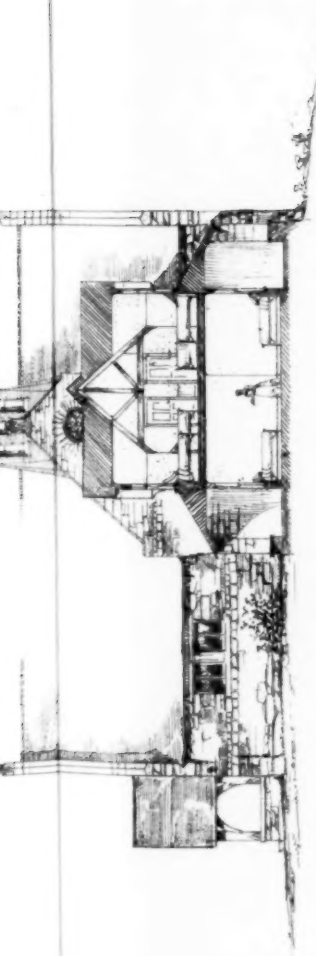
Stone, Carpenter and Willson, Architects
65 Westminster St., Providence, R.I.



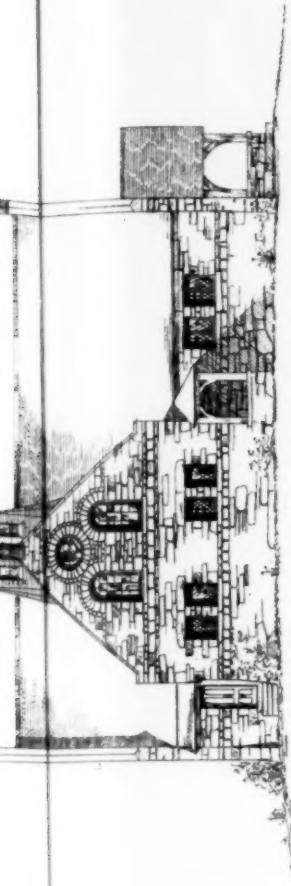
EAST ELEVATION

WEST FRONT ELEVATION

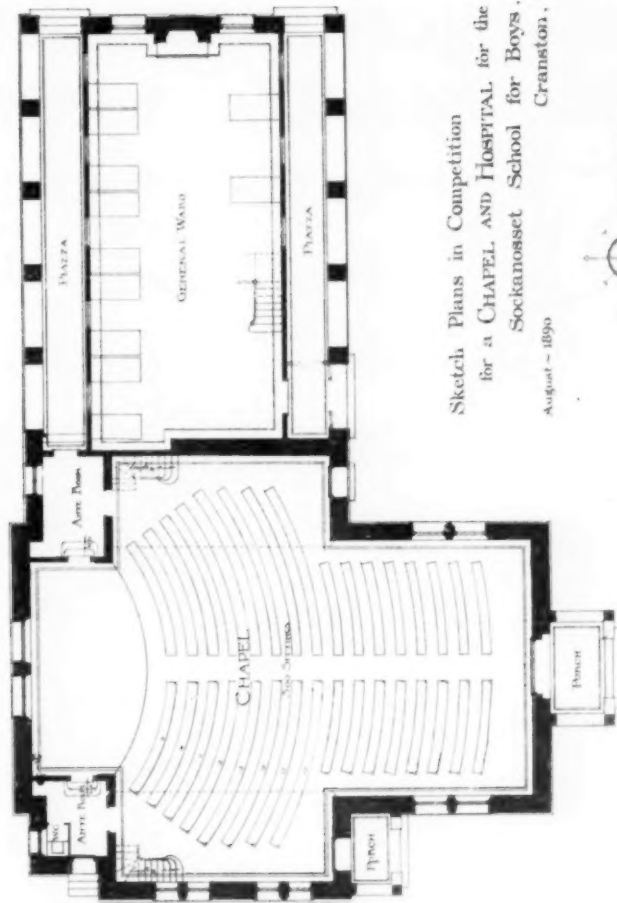




SOUTH SIDE OF CHAPEL AND SECTION THROUGH HOSPITAL.



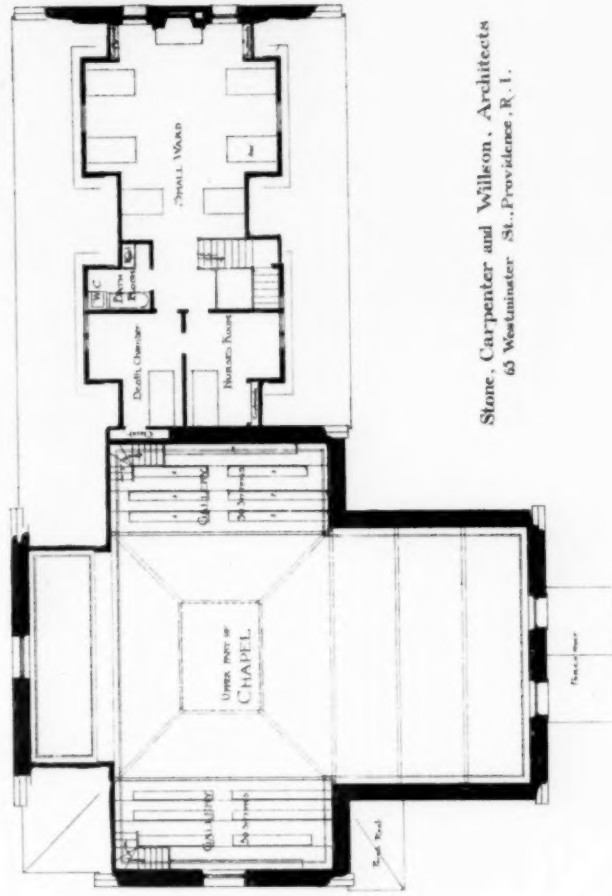
NORTH ELEVATION



Sketch Plans in Competition
for a CHAPEL AND HOSPITAL for the
Sackamossset School for Boys,
Cranston, R. I.
August - 1890



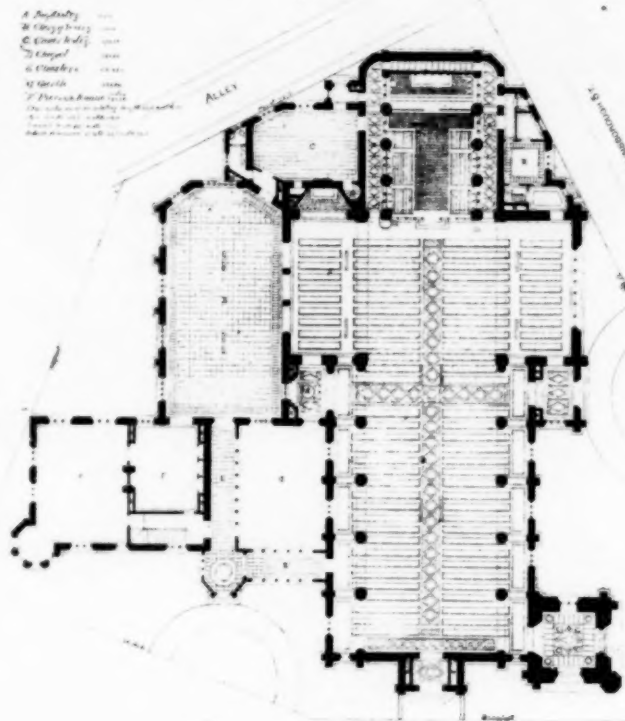
FIRST STORY PLAN.



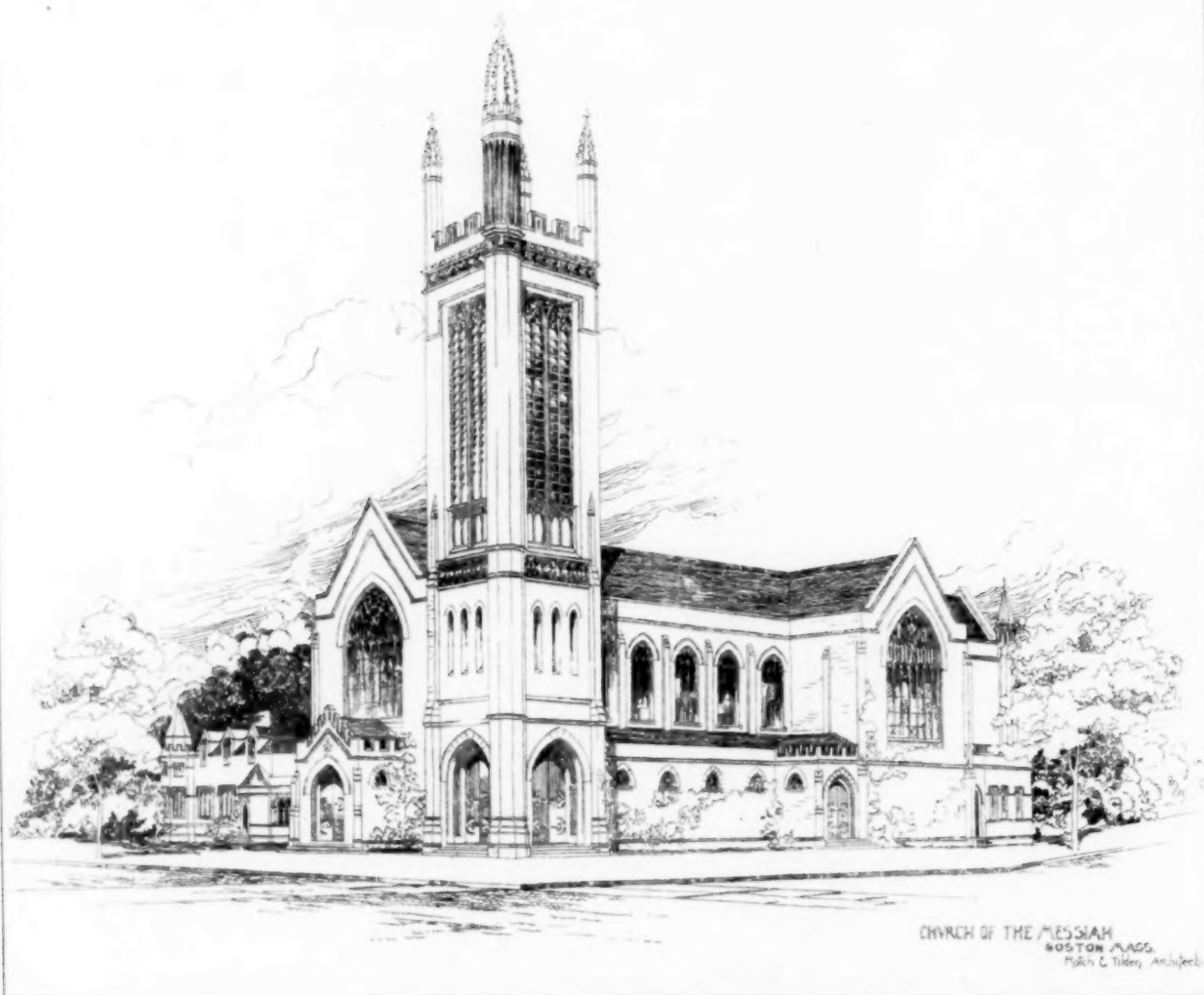
Stone, Carpenter and Willson, Architects
63 Westminster St., Providence, R. I.

SECOND STORY PLAN.

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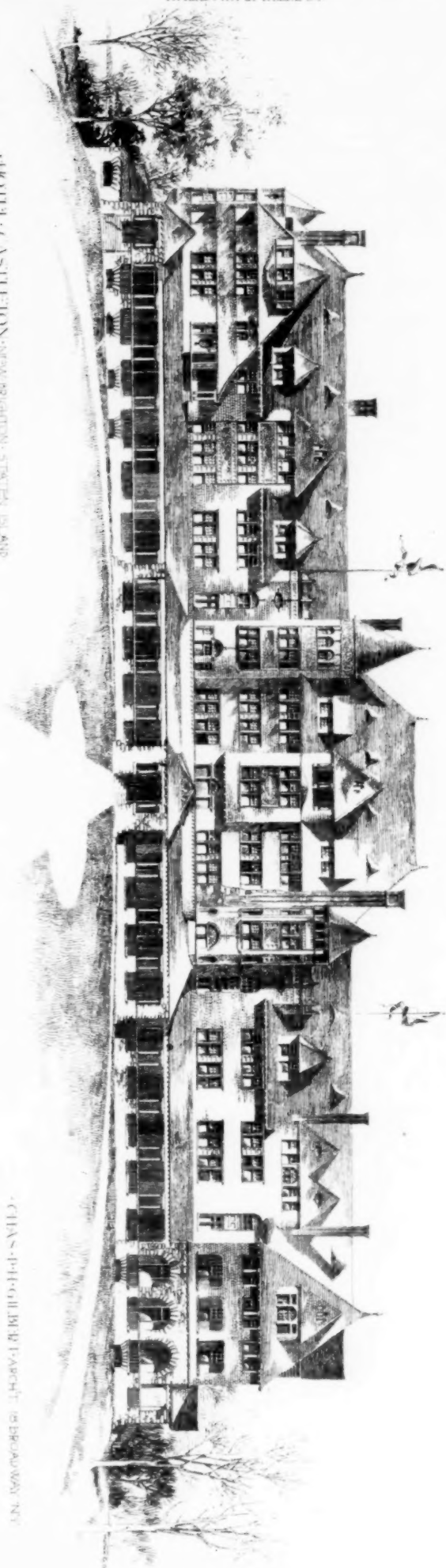


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