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SEPTEMBER 13, 1890.

THE AMERICAN ARCHITECT
AND BUILDING NEWS

VOL. XXIX.

* REGULAR EDITION *

NO. 768.

ARCHITECTURE

ENGINEERING



DECORATION

TICKNOR & COMPANY

CONSTRUCTION

BOSTON MASS.

L. S. Spence

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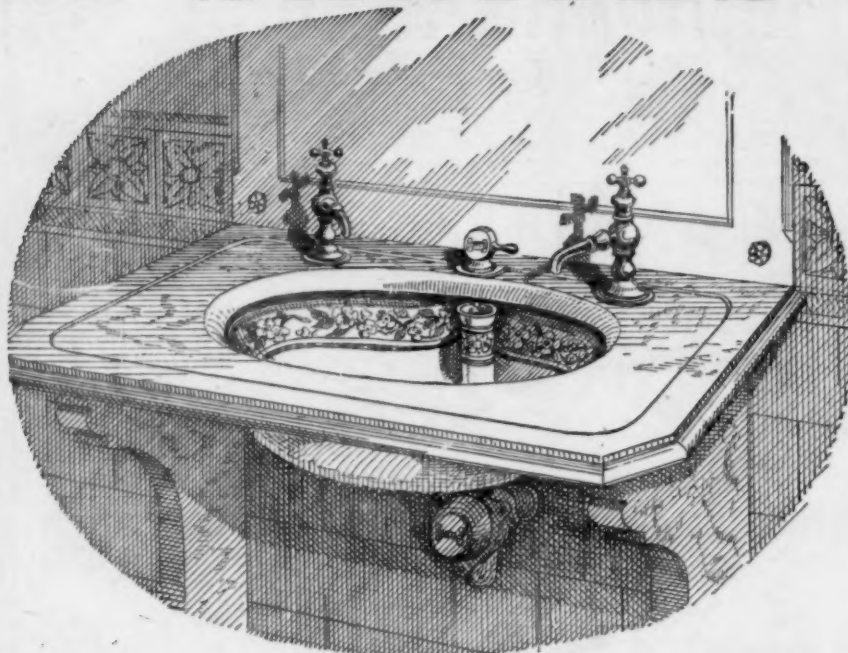
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VOL. XXIX.

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SEPTEMBER 13, 1890.



SUMMARY:—

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WITHOUT wishing to do Mr. Powderly and his associates any injustice, it is impossible for reflecting people not to wonder whether there may not have been some connection between the humiliating defeat of the labor leaders in the matter of the strike on the New York Central Railroad and the atrocious attempt at the wholesale massacre of innocent persons on the same railroad, which followed soon afterward. As every one knows, not only were the efforts of the “chiefs of organized labor” to extend and prolong the contest defeated by the good sense of the men themselves, but their own testimony before the State Board of Arbitration proved them to be so reckless and insolent in their methods of showing their power as to call forth general condemnation from decent people; while a labor convention at Baltimore, improving upon the public disapproval of the way in which organized labor has been managed, was bold enough, in expressing sympathy with the New York Central strikers, and offering contributions of money for their relief, to resolve that no contributions should be transmitted through Mr. Powderly, on the ground that money sent for such purposes in the care of the head magnates of the order was apt to disappear on the way. This is, we think, the first public attack which has been made on the integrity of Mr. Powderly and his associates, and we sincerely believe it to be unfounded; but it was immediately followed by another report to the effect that Mr. Powderly had made large sums of money in the stock-market, by anticipating the effect on railway shares which would be produced by his own action in regard to strikes. This, although probably not true with regard to Mr. Powderly, might be true of some of his confidants, and served still more to increase the disfavor into which the labor chiefs had fallen, and it would not be very wonderful if some of these were human enough to try to regain their influence, on which their position depends, by a startling stroke. Fear, as demagogues well know, is as effective as love in controlling men, and to people who delight in secret plottings, followed by dramatic pieces of mischief, a master-stroke of sensational crime might not be too high a price to pay for frightening the public, as well as the workingmen, into another long season of obedience. However that may be, the attempt to destroy two passenger trains at once was certainly planned by a cool and experienced head, and if it had been successful, the effect for the future in driving away business from any railroad which might be under the ban of

the labor magnates, and consequently, in increasing the influence of these magnates, would have been enormous. History tells us of a petty chief, who lived in a forest in Asia Minor at the time of the Crusades. This potentate, who was known as the Old Man of the Mountain, organized a band of ruffians among his subjects, whose duty it was to find their way into the presence of any one against whom their sovereign had a grudge, and suddenly stab him. The members of this corps of murderers were accustomed, before executing their perilous tasks, to intoxicate themselves with hasheesh, and were thence called “assassins,” as are still called those who imitate them. However unpopular the Old Man of the Mountain might have been in distinguished society, the members of that society strove, with the anxiety born of terror, to conceal their dislike, and more than one Christian prince humiliated himself to curry favor with the dreaded chief of the assassins by visiting him in state. In the same way a terrible railway catastrophe, occurring on a road which was still “in difficulties” with “organized labor,” and just after mysterious threats of “death-struggles” and other dreadful things had been publicly made by the labor leaders, would certainly have been attributed to their influence, if not to their actual direction, and the people who dislike to be killed or maimed on a railroad would come to the assistance of the “organizers” in requiring assurance that the directors of a given road were on good terms with the head assassins before they travelled upon it. Of course, it would be difficult in any case to trace the conception of a crime beyond those who perpetrated it; and experience shows that an extensive secret society has many methods of silencing witnesses, and getting culprits out of the way; but it is much to be hoped that the present case will be pursued to the utmost, and the Directors of the New York Central road will deserve well of the public if they succeed in bringing to justice all those concerned in arranging two inclined planes on the tracks, so as to throw two trains, passing in opposite directions, almost simultaneously into the air.

THE *Engineering and Building Record* quotes from a letter to the Troy *Polytechnic* some interesting particulars about the usefulness of various substances for anchoring bolts into stone. It was necessary, in the construction of an elevated railway, in a place where the line led over rock, to anchor the foundation by bolts to the ledge; and, in view of the expense, and other objectionable qualities, of sulphur and lead for this purpose, it was resolved to try whether cement could not be made available. To test the question, fourteen holes were drilled in a ledge of limestone rock, all forty-two inches deep, and bolts, some three-quarter inch, and some inch, were set in the holes. Around four of the bolts sulphur was then poured, lead was put in around four more, and Portland cement, mixed neat, around the remaining ones. Two weeks later, the bolts were pulled by a powerful lever. Out of those run with sulphur, one was drawn out under a strain of twelve thousand pounds. With the others, the iron yielded before the sulphur gave way. Three of the bolts caulked with lead also broke in place, one pulling out; but of those set in cement, one yielded slightly, and then broke, while all the others broke in place; showing that Portland cement is not only cheaper for setting iron into stone, as well as less likely to corrode the iron, but is stronger and much more easily applied. This account reminds us of a little experience of our own, which has a certain interest. In the construction of a building, where external anchors were used, some of the bolts, which were built through the walls, were sent, by a mistake of the maker, with the ends cut for wood-screws, instead of being threaded for a nut. As the work was being hurried, and there was not time to wait for others, they were used, on the assurance of the maker that he could fit nuts to them. After the walls were ready for the anchors, it was found that no machine was made which would tap an iron nut to fit a wood-screw, and the manufacturer made nuts of Babbitt metal, which were forced on the screw. These were rejected by the architect, on account of the softness of the metal, and a bolt, with the nut, was tested at the Watertown Arsenal, on the Emery testing machine, to determine the resistance of the nut. The bolt was pulled in one direction, and the nut in the opposite one, and

neither yielded until a force of fifty-six hundred pounds had been applied, when the nut burst, the threads stripped, and the bolt pulled out. The bolt was three-quarter inch, somewhat deeply cut, so that the resistance of the nut was about three-quarters of the strength of the bolt, and if it had been made thicker, the iron would probably have yielded before the soft Babbitt metal.

AN architect died recently in St. Joseph, Missouri, who had an interesting career. This gentleman, Mr. T. C. Smales, was born in England, about forty-five years ago, and began life as an engineer officer in the British army. Twenty years ago he came to America, and bought a farm of a thousand acres in Minnesota, which he stocked and carried on for several years. He was elected to the Minnesota Legislature, and served one or two terms. Becoming tired of raising cattle, he sold his farm and opened a banking-office, but was unfortunate, and soon lost all his property. He then went to St. Louis, and entered an architect's office as a student, and about ten years ago appeared in St. Joseph as an assistant in the well-known office of Messrs. Eckel & Mann. Three years later he opened an office of his own, and was popular and successful, having been recently appointed architect of the public schools.

AN annual exhibition is held in the Crystal Palace, at London, of the work of the societies for coöperative production, which seems to be steadily growing in importance in England. Within the last year or two, it has been asserted that the coöperative movement was losing its vitality; that the societies were badly managed, and that the idea of uniting the efforts of workmen in labor for their own benefit, and under their own control, must, apparently, be abandoned as impracticable. It is true that no very vast operations have as yet been undertaken by coöperative associations of workingmen; but in many cases business has been carried on at a small scale with satisfactory results from a financial point, and, no doubt, with consequences of infinite importance to the character of those who participated in it. It appears from the statistics collected that the coöperative societies have earned as profits during the past year from seven to ten per cent on their capital. Most of them provide that five per cent interest on their capital shall be reserved, and only the surplus divided among the members; but the surplus, being an addition to the regular wages, need not be large to be very welcome. The description of the manner in which capital for such societies is raised is interesting. In one case, the people employed in a certain town where fustian, or cotton-velvet, was extensively manufactured, undertook to raise a sort of mutual insurance fund by contributions of six cents a week from each member. After the contributions had been paid for nearly a year, the members took it into their heads to prepare for embarking, at some future time, in coöperative production, and resolved to devote to this purpose the sum already accumulated, and to raise more. In order to do this, the members were, while still working in the mills, organized into a Society for the Manufacture of Fustian, and certificates of stock printed. The members then arranged to take work home from the mills and do it in the evenings, and the sums earned by this evening work were sent to the treasurer of the Society, who credited them as payments toward stock in the company. The next step was to buy the uncut pieces of fustian from the mills, cut them at home in the evenings, and have them dyed; and a room was hired, where they were made up into clothes by members and sold. In this way two profits were saved for the Society: money accumulated, and, four years later, a building was bought in which the Society could do its own dyeing and finishing, saving another profit, and furnishing employment for new members. Twelve years more passed before the Society felt itself strong enough to establish a factory, where the fustian was woven from the original cotton. By this time the Society had found employment for more than two hundred people, and was doing a steady business, which still continues. Last year, the dividends amounted to nearly seven per cent, while a certain sum was added to the reserve fund. The Society contains six hundred and sixty-nine members, of whom, however, only about one-third find employment in its factories. The capital amounts to more than a hundred thousand dollars, so that the people who have had patience enough to work and wait for

sixteen years are rewarded by the possession of a solid little property.

THE Executive Committee of the Grant Monument Association has voted to hire a room in which to exhibit the designs received in response to the last invitation. It will be remembered that in the first competition so little inducement to participate was held out to architects of reputation that few of them cared to have anything to do with the affair, and the judges agreed that none of the designs sent in were worthy of execution. The committee of the Association then began over again, rejected all the first designs, and arranged a limited competition between five architects: Messrs. Carrère & Hastings, C. W. Clinton, N. Le Brun & Son and J. H. Duncan, of New York, and John Ord, of Philadelphia which has resulted in the award of the commission to Mr. Duncan, who has already distinguished himself as the architect of the memorial arch in Brooklyn. The cost of the Grant monument, according to Mr. Duncan's design, is estimated at five hundred thousand dollars, so it will be some time, at least, before we shall see it carried out.

M. BLANCHEPIERRE gives, in *La Semaine des Constructeurs*, some curious information about the architectural antiquities of Brittany. As to real architecture, Brittany does not compare with Normandy or Picardy, but it surpasses them in the strangeness and interest of its traditions, and some of its architecture is singularly connected with those traditions. For example, M. Blanchepierre says that the pious Bretons think of their dead friends and relatives with a "passionate devotion," and show it by a disposition of their cemeteries which is peculiar to the country. Every Breton graveyard of importance is, or was once, entered through a triumphal arch, as if those who passed through the gates, never to return, were on their way to the splendors of the resurrection. In most cases the arch was surmounted by the three crosses of Christ and the malefactors, and an altar was often placed upon it, at which M. Blanchepierre has himself seen the priest celebrating mass, before thousands of kneeling peasants. Inside the gate there is, as a rule, a monument of far more ancient origin than the triumphal arch, in the shape of a fountain, often beautifully sculptured, and surmounted by statues of the Eternal Father and angels. From the basin of this fountain the peasant still dips with both hands a libation of consecrated water, which he throws upon the graves of his loved ones. Although now performed with a purely Christian sentiment, this ceremony dates from the depths of pagan antiquity. It is well known that springs and fountains, or, rather, the deities who dwelt in them, were objects of worship among the heathen tribes of Northern Europe. Professor Dahn, in one of his learned historical romances, the scene of which is laid in the time of Attila, describes the superstitions connected with a spring, and several edicts, in later times, were directed against those Bretons who persisted in the adoration of such objects. In 452, according to M. Blanchepierre, the Council of Arles solemnly forbade the worship of fountains, but, even in 789, Charlemagne found it necessary, in a decree dated at Aix-la-Chapelle, to forbid the ceremonies which were still practised about springs and fountains, under the severest penalties. Brittany is, however, rather out of the way of imperial officials, and the libations with which the huntsmen of Armorica propitiated Frigga two thousand years ago are still repeated by their descendants, to commend themselves to the powers of the Christian heaven.

THE Spanish Government has appropriated fifty thousand dollars for the erection of a monument at Granada to commemorate the discovery of America, which is to be celebrated with great splendor in Spain in 1892. The design for the monument is to be selected in a competition, limited to Spanish artists, and great freedom is left to designers in regard to treatment. The jury is to consist of the members of the Royal Academy of San Fernando. At the same time, and before the same jury, are to be presented designs for a triumphal arch, to be erected at Barcelona, in commemoration of the same event. For the erection of this arch the Government has also appropriated fifty thousand dollars, but it is expected that the city of Barcelona, or rich citizens, will contribute enough more to furnish the structure with statues.

RELIGIOUS ARCHITECTURE.¹—XXIII.

ARABIAN ARCHITECTURE.—II.



Fig. 5. Doorways of the Mosque El-Azhar, Cairo [10th Century]. After Coste.

IN Egypt, a large number of Mohammedan edifices, erected between the eighth and fifteenth centuries, may be cited. It is especially in Cairo that the most beautiful and most celebrated mosques are to be sought.

The mosque of Amrou (Figure 1), the oldest known in the country, was built in 742; it has been restored several times. The simplicity of the decorations seems, however, to indicate that the original character of the structure has been preserved. Here, as in all the primitive Mussulman edifices, the arch is but slightly pointed. The columns are Greek or Roman.

The mosque of Touloun, of the ninth century, has likewise retained its primitive appearance. Its forms are very simple; the scanty decoration is Byzantine in character, and scarcely foreshadows the wealth of ornamentation seen in later Arabian architecture. One peculiarity should be noted: the arches are not borne on columns, but on massive pillars; the archivolts are supported on shafts placed at the angles of the pillars. The minaret is also built on an uncommon plan: the diameter varies greatly for the different stories, being much smaller at the summit than at the base, which rests on a huge square foundation.

The mosque of El-Azhar (Figure 5), of the tenth century, with later additions, attained great celebrity, on account of the university connected with it. Its three hundred and eighty columns were of marble, porphyry and granite. On the portal, reproduced from Coste, the progress in ornamentation may be studied. Though the Byzantine style is partially preserved, in the efforts at enrichment new and original decorative motives are beginning to appear.

The mosque of Kalaoun (Figure 6), built in the thirteenth century, has aroused much interest among archaeologists. Ebers² writes of it as follows: "The remarkable thing about the façade of the mosque and tomb-chamber of Kalaoun is its general aspect and its resemblance to a Gothic exterior. Long arcades serve as buttresses, with smaller arcades between, supported on columns; there are no cornices; the columns are destitute of entablatures; a portal adorns the entrance, with several arcades, one within another, borne on rows of colonnettes of varying sizes. This ensemble, devoid of order or symmetry, reproduces the essential characteristics of the edi-

fices constructed at the same period in France, Germany and Northern Italy.

"In fact, if such additions should be made to these Arabian constructions as are exacted by a cold and wet northern climate, such, also, as are demanded by the usages of the Christian religion, as well as those which statuary sculpture made possible at that epoch, lofty roofs, pointed gables, projecting gutters, spires, statues and bas-reliefs would naturally be employed for their preservation and adornment.

"The style of architecture thus evolved would certainly be that which has been termed Gothic, and of which a beautiful

example may be seen in the Sainte-Chapelle at Paris. The mosque of which we have just spoken and the Sainte-Chapelle were both built in the thirteenth century."

It is indeed interesting to note these analogies, but we cannot go as far as our learned author in the way of parallel, if what seems to us true be conceded; namely, that a constructional principle is of itself inadequate to stamp the distinctive mark of originality upon an architectural style; and that forms play an important part therein, as well as the decorative system. These lofty roofs, pointed gables, spires, statues, bas-reliefs

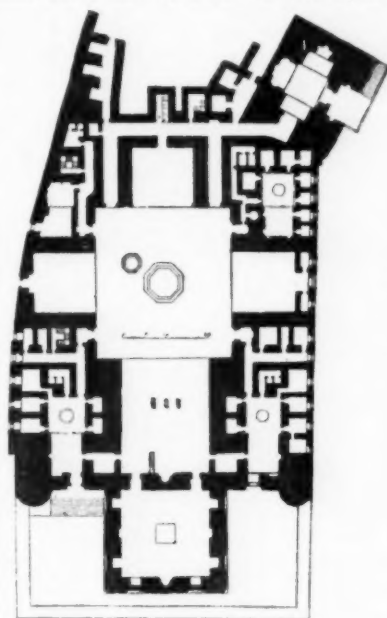


Fig. 7. Plan of the Mosque of Hasan, Cairo [14th Century].

and other ornamentations, all so different in Gothic art, are just what prevent one from ever confounding the mosque of Kalaoun with the Sainte-Chapelle.

The mosques of Hasan, Moulayad and Kait-Bey (Figures 7, 8) are of the fourteenth and fifteenth centuries; they are remarkable for the richness of their exterior and interior decorations, which have a distinctly Arabian character. The minarets are built in alternating square, polygonal and circular sections, and are adorned with stalactites of rare elegance—a kind of embellishment peculiar to Arab art.

Among the mosques of Africa, the celebrated mosque of Kairwan (Figure 9) must be ranked first. It was erected in the seventh century. The domes are depressed, in the Byzantine style; the slightly pointed arches rest on piers flanked by columns and surmounted by entablatures. In a word, the characteristic features of early Mussulman structures, scarcely disengaged from Byzantine forms, are found here on the shores of Africa, as in Syria.

We call attention also to the great mosque of Algiers, which was originally constructed in the tenth century, and to that of Fez and that of Tlemcen, of the fourteenth century.

In Spain, which is so wonderfully rich in Moorish

palaces, we have to note only the great Mosque of Cordova (Figures 10, 11), and the tower called the Giralda, at Seville (Figure 12), a remnant of the ancient mosque, partly wedged into the walls of the present cathedral.

The Mosque of Cordova was begun in 784–5 by Abdrame on the plan of the mosques of Bagdad³ and of Jerusalem. It is



Fig. 9. Mosque of Kairwan [7th Century].

¹From the French of P. Planat, in Planat's "Encyclopédie de l'Architecture et de la Construction." Continued from page 144, No. 767.

²"Egypt: from Alexandria to Cairo."

³Girault de Prangey: "L'Architecture Arabe en Espagne."

a *djama*, or principal mosque; the plan-dispositions are, however, the same as in the *mesjid*, or ordinary mosques.

In the Mosque of Cordova, aside from a number of columns which were taken directly from ancient monuments, the architec-

The mosaics at Cordova, as well as at Damascus, came from the Byzantines. Those in the mosque of Damascus were obtained by the conditions of the treaty of peace signed between the Caliph Walid and Justinian II, emperor of Constantinople.

Fig. 6. Interior of the Mosque of Kalaoun, Cairo [13th Century].

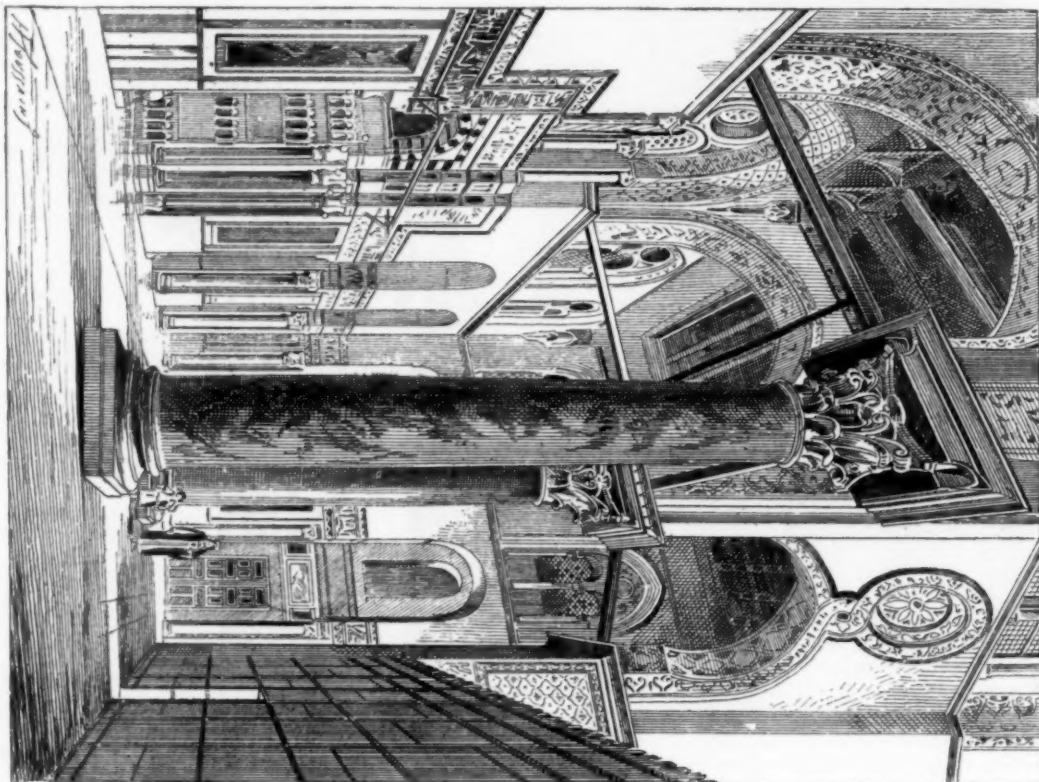
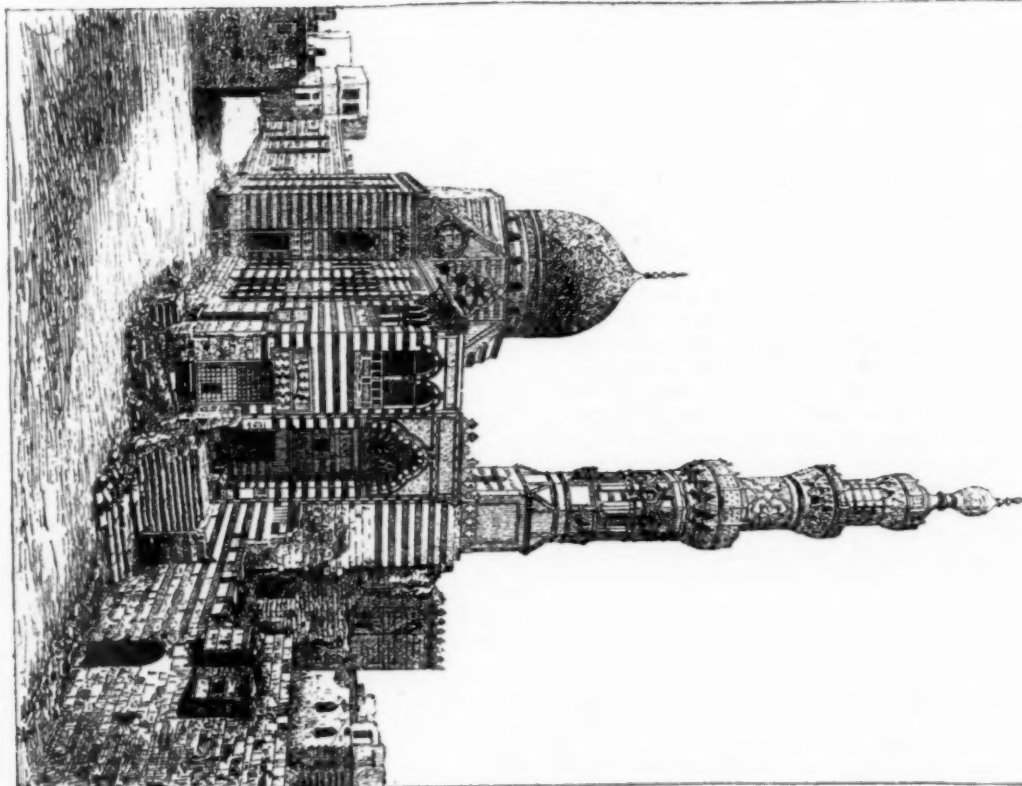


Fig. 8. Mosque of Kait-Bey, Cairo [13th Century].



ture plainly points to the fact that the Mussulmans drew their artistic inspiration from the ancients and the Byzantines; complete analogies can, moreover, be established between certain architectural members, as, for instance, between the architraves of Cordova and those of Ravenna or Trieste. The decorative system seems to have been inspired by Persian motives. The mihrab was reconstructed in the tenth century.

The latter also pledged himself to send the caliph architects and decorators capable of embellishing the mosques of Medina, Damascus and Jerusalem.

"Its minaret¹ towered to the height of forty orguia; its dome, resting on carved wooden panels, was supported by one thousand and ninety-three columns of different marbles,

¹ G. Lebon: "La Civilisation des Arabes."

disposed in quincunx order, and forming nineteen broad aisles, crossed by thirty-eight narrower aisles. The southern, main façade, fronting the Guadalquivir, had nineteen entrance doors; these were all faced with bronze plates of marvellous workmanship, with the exception of the central one, which was plated with gold. The eastern and western walls each had nine similar doors."

The Giralda dates from the twelfth century. It is built of rose-colored brick, and adorned with sculptures on the outside; in the bays, the pointed arch and the horseshoe semi-circle

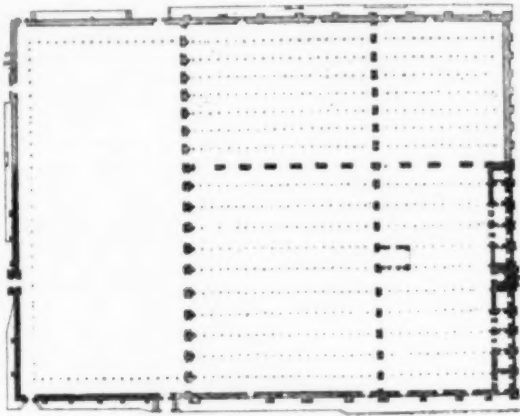


Fig. 10. Plan of the Mosque of Cordova [8th Century].

occur alternately. The walls, which are eight feet through at the base, increase in thickness upward, so as to form a sort of vault at the top; in the centre of the tower is a solid core; around this runs a sloping path supported on brick vaults, by which a man on horse can ride to the very summit. This disposition is said to be of Byzantine origin. The statue of Faith which crowns the structure is of recent date.

In Sicily, the Ziza and the Cuba palaces constitute the sole



Fig. 11. Interior of the Mosque of Cordova.

remains of Arabian architecture; no Mussulman religious edifices now exist there.

We will not enter into details concerning the Arabian decorative system, but will confine ourselves to a few general observations.

The Persians and Arabs alike abhor naked surfaces. In some of their structures it would be impossible to detect a bare point on the walls, so completely are they hidden by carvings, chisellings, and Arabesques of all kinds. Here, it may be said, the

love of sumptuousness has reached its extreme bounds. The simplicity which to us is necessary to rest the eyes would be to

a Persian or an Arabian shocking poverty.

Arabian ornamentation has certain characteristics which distinguish it from that of all other nations. The richness of its colorings, though derived from the Byzantine, and, more especially, from the Persians, far surpasses that of its models. The decorative forms are yet more significant. The representation of man, and even of animals, is almost wholly prohibited; floral motives and those borrowed from ancient art were not long in assuming in Arab hands a peculiar, we might say, geometric physiognomy; it is in the regular combinations of lines and geometric figures that the Arabs have always found the extraordinary fruitfulness of their decorative inventions, though admirably seconded by the variety of colors. This fact explains also the superimposition of stalactite and honeycomb pendentives, to



Fig. 12. View of the Giralda, Seville [12th Century].

which recourse is constantly had to fill up projections, and corbellings to effect changes of plan and form, and sometimes even to replace capitals; hence, likewise, the manifold variety of vaultings above the bays, the simple, pointed arch, the ogival



Fig. 13. Great Mosque of Ispahan [16th Century].

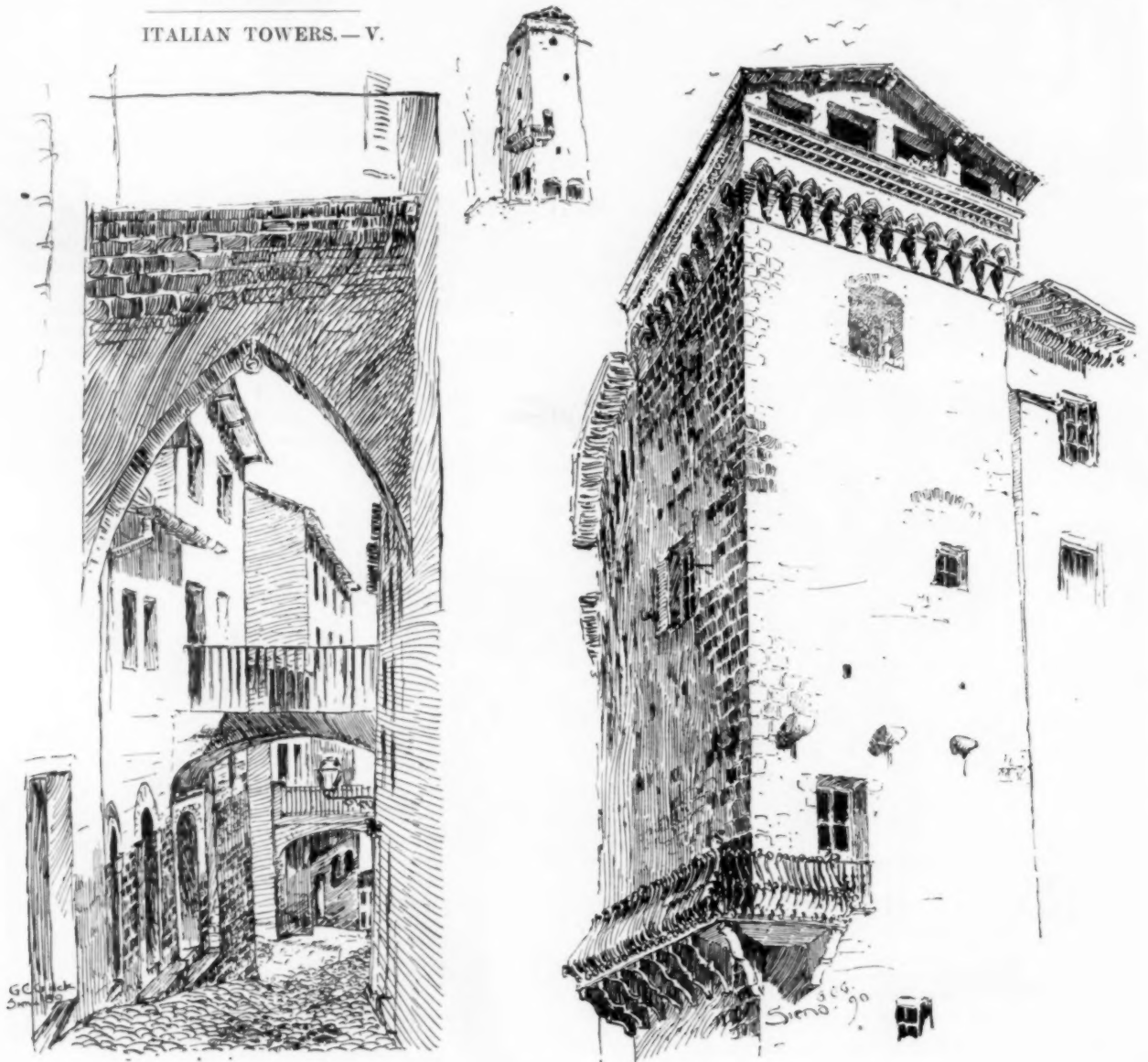
horseshoe, the trefoil, cinquefoil, and multifoil. At Cordova, the cinquefoil occurs surmounted by a trefoil, while the latter is in turn surmounted by a single horseshoe arch; and the three different forms are geometrically blended in the simplest manner possible, producing combinations of rare variety, grace and splendor.

The broad lines required to mark the divisions which are indispensable for the grouping and co-ordination of the tangled ornamental patterns are decorated with the Arabic written characters. Their forms harmonize admirably with the Arabesques, and also offer a repetition of vertical lines, which gives a real stability to the broad lines of division; at the same time the symmetry obtained by the regular recurrence, end to end, of these short sentences, contributes to the desired result, namely, to fix, strengthen, and fitly frame ornamental designs which would otherwise be too complex and diffuse.

In connection with this subject, permit us to recall a rather singular fact. When the Arabs were driven out of Europe, notably from Sicily, a number of Christian edifices were, in their turn, enriched at the expense of the mosques, or were embellished with decorations copied from Arabian designs. There is a door in the Milan cathedral in the pointed style, with a frieze on which is an Arabic word repeated several times. "On the doors of St. Peter's an Arabic legend forms the aureole about the head of Christ, and a long band of Kufic letters is developed on the tunics of St. Peter and St. Paul." This inscription is, naturally, the Moslem watchword: "There is no god but Allah, and Mohammed is his prophet." Where will Mohammed take up his abode next?

[To be continued.]

ITALIAN TOWERS. — V.



AS we came slowly around the city walls of Florence again, after our winter in the South, sweeping in on the broad curve that the train from Rome makes on entering the city, we ran through meadows dazzling with the great Florentine anemones and by hedges rows fragrant with blossoms, while farther away on our right,

¹ Continued from page 27, No. 759.

Fiesole, which we had left all gray and brown except for the dull colors of the olives and evergreens, was now a mass of the brightest green leaves and white blossoms. The great dome of the cathedral and all the familiar towers seemed more beautiful than ever before, and as we drove through the streets from the station the cafés and shops, even, seemed brighter and gayer.

But we lingered there only a little while: nearly all of northern Italy was an unknown country to us yet, and the day after we reached Florence we left it, wandered up the valley of Elsa to Siena, attached to the rear of a freight train, while the flowery luxuriance of the Arno Valley changed, and bleak and barren moorlands took its place, interspersed with curiously rounded hills and mounds and bare wastes of yellow and red earth.

Once at Siena and well inside the city walls, however, we forgot the raggedness of the country outside, for, as I have said before, Siena is Florence again in an intensified form. The spirit of mediæval Florence still remains here, and none of the modern improvements which have crept in there and continually obtrude themselves, have reached Siena yet.

As in Florence, the two chief points of interest are the public square and hall and the cathedral, and each of these in its entirety is finer than the Florentine.

Of the Palazzo Pubblico I have already spoken. Of the Cathedral, one of the best of its time in Italy, no adequate description can be given here. The "Church Building in the Middle Ages" by Norton gives one an idea of the spirit of the artists and the architects to whom it was entrusted; and more than that, the spirit of the

people who chose artist and architect, a people even more restless and turbulent, if possible, than their Florentine neighbors, — not quite as artistic perhaps, but able at least to import their artists and architects and wise enough to import good ones. And so, as was usual, a number of architects were called to build a cathedral which should eclipse all previous attempts and even if possible discourage future

efforts in that direction. And had the plan been carried out, had not the plague,—that dreaded unknown factor which entered so often into Italian life in the Middle Ages,—laid its hand upon the city, undoubtedly the hopes and aspirations of the Sienese would have been fulfilled. As it is now, the great piers and arches still stand unfinished, with more of beauty even in their incompleteness, and in their mute appeal to the appreciative mind far more effective and impressive now than even the Cathedral itself. For that, like every other church, has been "restored" ever since it was built, and only in portions of the façade does one find the beautifully mellowed and softened marbles and clear and simple carving which belong to that best period of Tuscan art.

The tower itself has in a much greater degree escaped; at least the restorations there, from the very nature of things, are less apparent and less likely to injure the beauty of the structure.

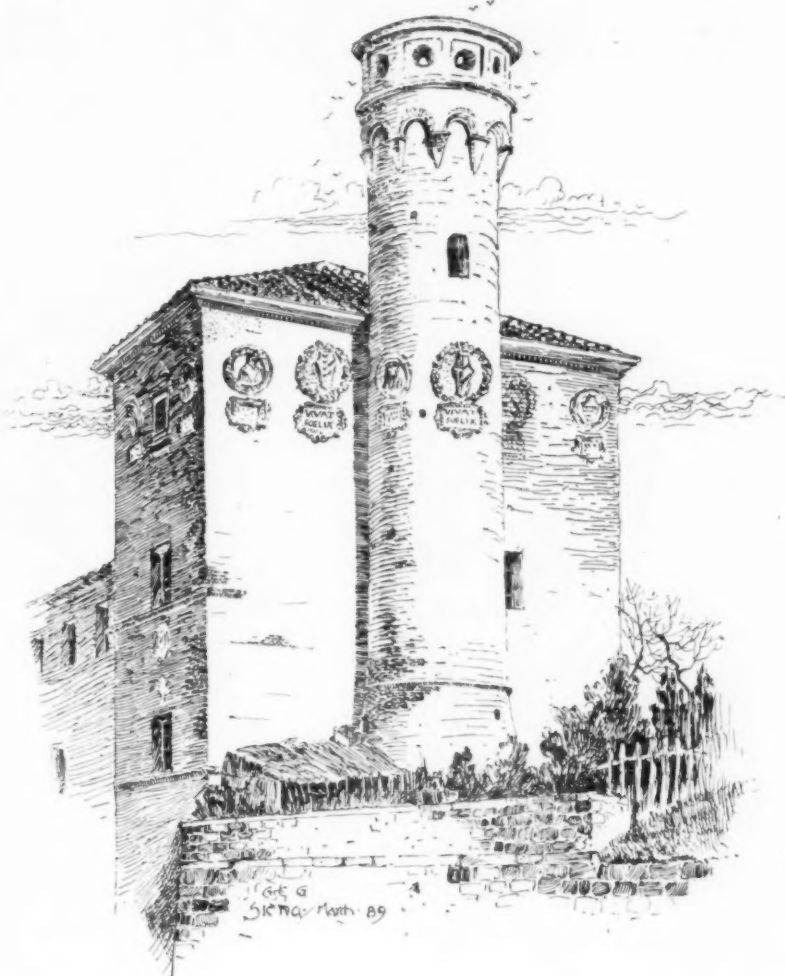
It is a familiar tower to all of us. The coloring is very vivid, and the stripes of the black and white marble are almost too strong at first; but as one sees them day after day they grow less and less

with their slender shafts, crowned by this same octagonal roof, give it all the richness one can ask.

Down the great flight of steps from the cathedral piazza, by the baptistery, along the twisted Via di Citta and almost opposite the Café Greco—a café with the most excellent small cakes and Marsala—stands one of the best examples in all that region of the old tower house. Even there, in that street of heavy and forbidding palaces, it seems crude and of a far more barbarous age than its neighbors.

It is built of heavy blocks of stone which contrast sharply with the smooth stuccoed buildings on either side. Below, shops have been cut out of the almost solid rock, and they seem almost like caverns in some rocky cliff. On the second floor, too, there has been thrown out a balcony with corbels of stone and floor and rail of wrought-iron, while high up in the air above all is the loggia, roofed with tiles and full of flowers and vines.

There were plenty of these old houses in every Italian town five hundred years ago, and then they were strongholds not to be despised.



pronounced and more and more essential to the character of the tower.

It is a very old campanile indeed. It is said to have been begun in 1146, and was probably long in building, for on the cathedral itself two hundred years of more or less earnest work were spent.

Built doubtless with one of the old tower-houses as a base, it rises beautifully, far above the church and the surrounding buildings, and from the valleys below and around Siena it makes a culminating point toward which the rest of the city seems to reach and lift itself.

The openings increase in regular order, one for each successive story, and there are six stories, the lower one projecting a little beyond the rest, giving an apparent taper to the whole tower; this constant and regular increase, too, in the space of the openings, adds to this illusion.

Its proportions are well nigh perfect, and especially as one sees it from a distance the whole beauty of it is revealed; then the black and white bands are mellowed by the distance, the streaks that the centuries have made upon its sides become but faint shadings of color, the lines of the octagonal roof and the corner towerlets show delicately yet strongly against the sky, and the arcaded openings,

Walls of an extraordinary thickness, windows few and small, rooms which were mere pews, and a stair-case dark and steep: all these were endured then that the owner might go to sleep at night with some assurance of a safe awakening.

But the house did not set itself emphatically against adornment, if it were in a modest way; both the corbelling near the top and the belts of brick above that show that the builder was not averse to a little embellishment. Lower down, too, the three stone corbels show where the arms of the family, carved probably in stone, were displayed in a row across the front.

I do not know the history of this old house, but it must be a most interesting one; almost surely, too, a history in which tragedy was the main element. A house built doubtless for one of those tyrants of the thirteenth or fourteenth centuries with whom Siena was overrun; tyrants against whom Siena continually arose in revolt with varying fortunes, until at last in the sixteenth century Florence overcame her and the arms of the Medici overpowered and crowned the Sienese wolf.

It is to this later period that the Palazzo dei Turchi belongs—to this period or one a little earlier. Late in the fifteenth century it was

built but by whom or for whom I do not surely know. It is situated a short mile from town outside the Camollia gate, the gate that looks to the north and is at the end of the longest street in Siena—that is, the longest street that shows its length to any degree, for there are doubtless lanes and narrow streets in the twisted and tangled maze of streets, which, taken out of town and redeemed from their crookedness, would reach half way to Florence.

The views which one gets to the right in going out to the Palazzo are very striking. Across the valley through which the railway to Rome winds, the hill-slopes are dotted with farms, some of the most interesting ones we saw in Italy; large and well-kept, all in white stucco, with their great loggia-like shed buildings and huge fodder-stacks, all showing from the angle of the hillside as though we were far above them. And on the road itself, crowded with peasants coming to town and driving pigs or sheep or the great, mild-eyed Sienese oxen, whose huge horns sometimes measured six feet from tip to tip—there is always enough to occupy one.

The most striking feature of the tower of the Palazzo dei Turchi is the absence of windows or any marked post of observation, except as a means of cautious and careful espial. There is but one approachable window in the body of the tower, and above, where the battlements and belfry are wont to be, is a close high parapet pierced with loop-holes flaring on the outside. It is remarkably thick, too,



and is very strongly bonded; in short, evidently a tower built rather to serve as a lookout over the neighboring hills and a refuge to its possessors, than to attract the eyes of those whom it watched. It is almost unique among the few round towers of Italy, in both construction and design, being built entirely of brick and having absolutely no adornment except the corbelling at the top and the terra-cotta panels in its walls. And these terra-cotta panels, by-the-by, are the most noticeable thing about the building.

The upper portion of the walls all around is studded with the arms, the portraits and the motto of the inhabitants. The arms at once suggest the name of the palace, for the crescent appears everywhere. But the palace has another name, wonderfully suggestive too—the Palazzo dei Diavoli—and this too is borne out by the arms and motto even more fully perhaps than the first name, for the shields all bear the bar sinister and the motto is "Vivat falix." In Italy, in the sixteenth century, the family that bore that for a motto, probably deserved far more the title "dei diavoli" than the milder one of Turks.

There are but few other towers in Siena of more than a passing interest. The campanile of S. Maria del Carmine, designed by Peruzzi is better than the average Renaissance campanile, and is built entirely of brick, pilaster caps, cupolas, dome and all. The campanile of San Domenico is too ruinous to be beautiful now; but,

dating from 1340 it has a certain dignity which age always acquires, sometimes unworthily.

These are about all the Sienese towers now left, but these few have each its own peculiar style and character, and again we noticed this fact, coming as we did from Rome and the south where each section of the country had, repeated again and again, its own special features.

Florence and Siena,—the two cities so marked in their individuality, still stand out in this respect, and you will find in them the prototypes of nearly every tower-type in Italy. I can think of but one, the many storied tower of early Rome, which, if the immediate neighborhood of Florence be included, may not be paralleled closely by some tower in either Florence or Siena.

Of course this is greatly due to the fact that Florence, after the middle of the fourteenth century, furnished architects for nearly all Italy, and these were masters in their art, and even though they designed but few of the multitude of the works of the period, necessarily gave to those with whom they came in contact the spirit of their work, and the influence of Arnolfo, Giotto and the Pisanos may be felt from one end of Italy to the other. And from the nature of the case, the town or region in which these men lived and worked—and worked, too, with a zeal not wholly born of the lust for gold—in these parts it was natural that a greater variety of types should arise, than in those regions where a fashion inaugurated by one or two and copied again and again by the many, became dominant and finally excluded all others. GEORGE CLARENCE GARDNER.

(To be continued.)

EQUESTRIAN MONUMENTS.¹—XXVIII.

THE PARTITION OF POLAND.—III.



Persian Horseman, from a Bas-relief found at Taky Bostam. After "La Vie privée des Anciens."

WHO Peter the Great was, and what he did to compact, aggrandize and develop his dominions so that the history of modern Russia begins with his time, is matter of too common knowledge to need mention here. In time, a little later than Tehmelnitzi, he was a contemporary of Augustus the Strong, through alliance with whom he kept in touch with the opportunities which the Cossack leader had opened, and which were to result later in that partition of Poland which his able successor, Catherine II, finally helped to bring about.

The immoral but able Catherine had a great admiration for her equally capable and vicious predecessor, and she determined to create a fitting monument in his memory. Casting about to find a sculptor able to carry out her wishes, her choice fell upon Etienne Maurice Falconet, at that time holding high rank amongst French artists, and in 1766 invited him to leave his work in Paris, of which he had abundance, and come to St. Petersburg for the purpose of carrying out her scheme. It is curious that her choice should have fallen upon Falconet, as he had never modelled an equestrian figure; but he was a man of considerable learning and a bosom friend of Diderot, and as Catherine was something of a blue-stocking herself, and maintained a considerable correspondence with contemporary men of letters, she possibly became acquainted with Falconet's abilities in this way. After discussing the matter with his friend Diderot, Falconet accepted the commission, and the contract made with him by Prince Gallitzin, Catherine's minister at Paris, was so generous and fair that its general features are worthy of mention. The contract makes it appear that it was Prince Gallitzin who recommended Falconet, who was at that time Professor at the Académie Royale de Peinture et de Sculpture. By the terms of this instrument, it is agreed that Falconet shall set out from Paris in September, accompanied by a first and second assistant and a moulder; that a carriage and 12,000 francs for their travelling expenses shall be provided; that the three assistants shall be furnished with lodging and fire; that the three assistants shall be paid 6,000, 5,000 and 4,000 French pounds per annum from the day of their leaving Paris to the day of returning to it again, and that on their reaching St. Petersburg they shall receive their first quarter's pay in advance; that Falconet shall be at no expense for the erection of studios and workrooms, and that all materials, tools and models, both of men and horses, shall be furnished to him free of charge; that he shall fix the pay of subordinate workmen, which shall be discharged by the Imperial treasury; that he shall have the right to dismiss any workman at his pleasure, and that he shall receive orders only from the Empress herself; that he shall be provided with a suitable lodging near his studio, and a table "saine et frugale," at which he can entertain one or two guests at his pleasure, a carriage for his daily use, and that he shall

¹ Continued from page 147, No. 767.

be relieved from the domestic care of his establishment; that his salary shall be 25,000 francs per year up to the total sum of 200,000 francs, and, if the work requires less than eight years for its completion, he shall receive the gross total sum, while if more than eight years are needed because of accidents or sickness, his remuneration shall depend on her majesty's benevolence and sense of equity; that his annual salary shall be paid to his agent in Paris; that in case he does not succeed in satisfying the expectations of the Empress, he and his three helpers are to have 12,000 francs for the defraying of the cost of their journey home.

A fairly enticing and equitable contract this, that bears date of August 22, 1766, even if it does imply banishment for a while to a country where it is the part of wisdom to stipulate that the fire of genius, which may warm the artistic faculties, shall be supplemented with caloric radiated in sufficient quantity from the wood of Russian forests to keep the grosser animal faculties in working order.

Falconet found a portion, at least, of his sojourn most agreeable, for Catharine at once welcomed him as one of those choice minds whom she delighted to make her friends and correspondents. Indeed, the correspondence she maintained with Diderot, Voltaire, Frederick the Great and others of the same stamp of mind, gives a curious impression as to her character, when her other traits of mind and her actions are remembered.

Falconet at once set about his work with ardor, and proceeded to model his group, taking as a point of departure, very likely, the model for a statue of Louis XIV for the city of Marseilles, which Puget, for whom Falconet had a great admiration, had prepared not long before. Another story is that Diderot, in the course of conversation with the sculptor, suggested the pose and treatment.

The difference between the mental attitude of a sculptor in those days and in these, when photographic similitude is mainly aimed at,

model, to seize so far as possible the traits of the true Russian legislator, and to give them such expression that he would at once recognize himself in that character. I have not clothed him in Roman garb, nor have I placed a marshal's baton in his hand; the ancient costume of the country would have been out of place, since Peter

himself endeavored to do away with it. The bear-skin upon which he sits is symbolic of the nation he civilized. Perhaps the Czar might ask me why I did not place a sabre in his hand. But he made too free a use of it during his lifetime, and it is a sculptor's duty to express merely those traits of character which are ennobling, and to cast a veil over those that are blemishes. A studied panegyric for the inscription would have been out of place and useless, since history has already discharged the task with much impartiality. I must render justice to the good taste and judgment of the Empress, who preferred to all the inscriptions that could be devised, the simple words:

"PETRO PRIMO CATHARINA SECUNDA MDCCLXXXII."

In this interview Falconet did not account for the obtrusive presence of the great bronze serpent which squirms beneath the horse's hind feet. One would think that an artist, who so logically eschewed symbolism,

restricting it entirely to the bear-skin saddle-cloth, either would not have perpetrated such a vagary or else would have been careful to explain its real meaning. It is usually understood that the serpent embodies the spirit of conspiracy.

In eighteen months Falconet had completed the model, but not without encountering one obstacle that nearly brought the whole undertaking to naught. Do what he might, the sculptor could not produce what the Empress would accept as a proper representation of the Czar's head and countenance. Thoroughly discouraged with his third failure, and feeling sure he could never satisfy his critic, he expressed his despair to Mlle. Marie-Anne Collot, a favorite pupil, who had followed him to Russia, and later became his son's wife. This young artist, then less than twenty years of age, had already won the regard of the Empress, and was receiving a salary of 10,000 livres, in return for which she executed a number of commissions



Head of the Equestrian Statue of Peter the Great. From a Contemporary [1772] Engraving by L. Henriquez, after a Drawing by A. Lossenko, in the Collection of the Boston Museum.



Peter the Great. Falconet, Sculptor.



Drawing of the Statue of Peter the Great by Antonio Lossenko.

is well shown by the statement of his purpose, which the sculptor made to the English traveller Wrexal when the latter visited his studio at St. Petersburg: "I have tried, while working on this

for Catherine, amongst them busts of Voltaire and Diderot. Mlle. Collot sympathized with her master's distress, and saying that she felt sure she knew what the trouble was, asked leave to try her hand.

The sculptor gladly accepted the offer, and the young girl at once began her task, and, by working all night, had ready in the morning a sketch-model, which Falconet carried to the palace at once. The one female mind had comprehended the other. Catharine was well pleased, and ordered that the sketch should be followed. Falconet made no attempt to conceal the authorship of the bust, and always openly avowed that without Mlle. Collot's help the statue would probably have been abandoned. The model finished, there arose a difficulty about the casting. The founder who was engaged to do the work made the sculptor wait two years and a half, and during this idle time Falconet did other sculptures and much literary work, amongst other things translating Pliny.

Wearied with waiting, Falconet at length had to undertake himself the casting of the statue, and, in spite of the difficulties, accomplished it successfully, making the great casting at a single jet. But, as nothing in the contract covered this extra work, there arose, not unnaturally, a dispute as to what should be his recompense for it. Tired with arguing the question with the Minister of Fine Arts, General Betzki, Falconet left St. Petersburg before the statue was



Statue of Peter the Great before the School of the Engineers, St. Petersburg. Martelli, Sculptor.

erected. In spite of this impolitic exhibition of temper, which after all had many things to excuse it, Catharine sent him later a copy of the medal struck in honor of the inauguration of the statue.

There are two notable points about this monument: first, the pose, which, as shown above, is thought to have had its inspiration in Puget's sketch for a statue of Louis XIV, but which really has so very marked a resemblance to the pose of the horse which upholds Augustus the Strong at Dresden, that it leads one to think that possibly Falconet may have visited Dresden on his way from Paris to St. Petersburg, and by a process of unconscious cerebration have reproduced the last impression made on his mind by an equestrian figure. Like the Augustus, the Peter is largely supported by a voluminous tail, in casting which two tons of metal were used; but besides this, the other fourteen tons of metal which go to make up the statue were so disposed by varying the thickness of the casting at different points, from one inch to one-quarter as much, that the centre of gravity of the whole mass falls in a line over the horse's hind hoofs.

The second point of interest is the pedestal, a natural boulder upon which Peter is fabled to have stood while watching a naval battle between his own ships and the Swedish vessels. To bring to St. Petersburg from the neighboring Finnish village of Lakheta, four miles from the city, where it was found, an unwieldy stone 45 feet long, 30 feet high and 25 feet wide, weighing about 1,600 tons, was an engineering feat of the first order, when the means at hand and the character of the ground over which it had to pass are considered. The transportation was directed by Count Carhuri, Chief of Police, and his working force consisted of five hundred men, with a complement of horses. To prepare the road over which it was to pass, a way had to be cut through a forest and a morass had to be drained; then, when the ground was frozen, cannon-balls were worked under the mass, and

upon a continuous series of these convenient anti-friction rollers the stone, by the aid of ropes, windlasses, horses and men, was finally dragged to the city. Here preparations for it had been made by driving eighteen-foot piles, and upon them laying a masonry foundation ten feet and a half thick. How large an area was thus prepared is not stated, so the pressure per square foot cannot be calculated; but with a total weight of 1,616 tons to sustain, it may be supposed that it was expecting a good deal of the treacherous and marshy ground upon which the city is built to hope that no settlement would take place. That such settlement has taken place seems to be proved by variations in the figures which writers at different times have given to the dimensions of the base, though this may be owing to the taking of measurements from and to different points in the several cases. Moreover, it is a little doubtful whether the whole of the original rock was in the first place actually used. It was broken in getting it to St. Petersburg, but the two fragments were united and finally used, though some portion of it may have been cast aside. Aside from these differences in measurement, evidence of a subsidence seems to be offered by the contemporary drawings which Antonio Lossenko made for Catherine, and which are now in the Museum at Nancy. Assuming that these drawings are trustworthy, and in the faithful delineation of the unchangeable bronze figure there is internal evidence that they are, it is shown by them that the upper surface of the rock upon which the horse stands formed a greater angle with the horizon than it now does; evidence this, seemingly, that the settlement has been uneven, and that the front part of the foundation has yielded most. But there is another way of accounting for the relative changes which have undoubtedly taken place: there is probably no bench-mark to level from, and so measures must be taken from the normal surface of the ground. Now the action of frost on the pavement of St. Petersburg streets makes it necessary to repave them every two or three years: this is done by levelling and filling before the paving-stones are replaced, and, as in the large open space in which the statue stands there is nothing in the way of near fixed surroundings to prevent the grade from being a little higher or a little lower at one time or another, it is probable that the general level of the square has been slowly raised by successive road repairs; and, as there are no horizontal moulding lines about the base of the pedestal, there was nothing at that point to give notice that the pedestal was gradually being buried out of sight, while a gradual change in the direction of the grade of the paving in the square might give an inalterably fixed pedestal the air of having subsided in the opposite direction.

The vastness of the space in which it stands prevents the statue from having the effect on the beholder which is due to its actual proportions. At present the pedestal is about fourteen feet high, the horse seventeen and one-half feet high, while the rider measures eleven feet.

The ceremonial attending the unveiling in August, 1782, sixteen years after the commission was given to Falconet, was unusually splendid, and, in commemoration of the event, medals bearing the head of the Empress upon one side and the new statue upon the other, valued at fifty, forty and twenty ducats each, were distributed to the four upper classes of society; and, furthermore, Catherine released all debtors who had been in prison for five or more years, and cancelled all debts to the Imperial treasury that amounted to less than five hundred rubles each.

For more than a hundred years the statue has been waiting in vain for that companion statue of Catharine which Voltaire, skilled flatterer that he was, declared the bronze figure was trying to beckon into being.

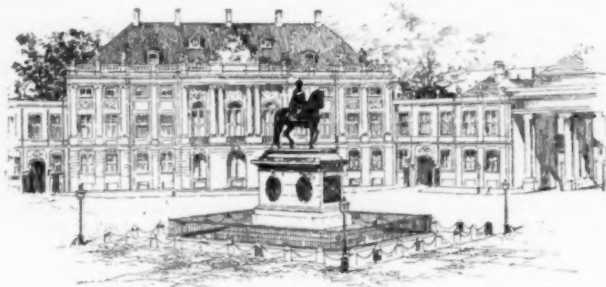
It is not a common thing in these days for two equestrian monuments of the same subject to be found in the same city. Louis XIV, at Versailles, has a double in the Marcus Curtius, just outside the park, and the Wellington at Hyde Park Corner is paired with the statue of the Iron Duke before the Royal Exchange; but these are the only cases of the kind that reflection discovers, so that the existence of a second equestrian statue of Peter the Great at St. Petersburg is a noteworthy fact. This statue stands near the Summer Palace, and in front of the School of Engineers. It is of bronze, upon a marble pedestal, and bears the inscription: "The great-grandson to the great-grandfather. 1800," which rather parodies the inscription that Louis XVIII placed on the pedestal of the statue of Louis XIV in the Place des Victoires in Paris, and in this case, as in the earlier one, the inscription seems to make it plain that its object was to glorify the reigning monarch who erected the monument in as great a degree as the ruler whose memory it was assumed to honor.

This time the Czar is clothed in Roman armor, and wears a laurel wreath upon his head, and in his hand carries the regulation baton. The statue, by an Italian sculptor named Martelli, is extremely uninteresting and commonplace.

It is recorded by Bellier d'Auvray, although the dates he gives do not properly support his assertion, that Catherine desired to entrust the making of the statue of Peter to Saly, a French sculptor at the Danish court, but that Saly begged to be excused because his health had seriously suffered through the persistency he had displayed in completing the equestrian statue of Frederick V at Copenhagen. Now the statue of Frederick V was set up in 1773, while the contract was made with Falconet in 1766, which seems to discredit the story that Saly ever had a chance to do the Peter. It does not appear, however, that Saly had anything to do with the casting of the statue,

and, it is possible, that his own work upon it was finished before 1766, so that the story may not be apocryphal after all; indeed, it is rather more reasonable that Catherine, thinking of erecting an equestrian statue, should learn about the recently completed work of this kind by a sculptor in a kingdom near at hand, than that she should at once apply to a sculptor at a much greater distance from her, and one who had never done any work of the kind.

The statue of Frederick V which Saly actually did create is a work of mediocre merit, and represents the king in classic attire



Frederick V in the Friedrichsplatz, Copenhagen. Saly, Sculptor.

with baton-holding, outstretched hand. This statue was paid for by the Danish East India Company. Either this statue was greatly reduced from its original estate, through motives of economy, or else Saly was commissioned to execute two equestrian statues of the king, only one of which was finally erected. The reason for thinking that two statues may have been modelled is not so much that the one described by Patte was very much more elaborate than the one now standing, as that this more elaborate memorial was commissioned by the States of Norway, at that time dependencies of the Danish crown, while the statue unveiled in 1773 was the gift of the Danish East India Company, as stated.

Whether there were really to be two statues, or only one, the model described by Patte as to be "the most remarkable in all Germany" showed the king as a Roman conqueror, as in the other case, but the pedestal was supported on either side with allegorical figures of Denmark and Norway, while at the narrow ends of the pedestal were fountains which represented, one the Baltic and the other the Ocean. The presence of the figure of Norway supports the theory that this group was to be erected by the Norwegian States and, therefore, could not have been identical with that of the East India Company; but apart from this there is no reason for not thinking that Patte describes merely an early study which was too expensive to carry out.

This, perhaps the more plausible theory of the two, can be supported by the following facts: In 1750, a model for an equestrian statue of the king was prepared by Lucas Tuschler a native of Nuremberg, but at that time settled in Copenhagen. This model which met with favor embodied as supporting figures Triton-mounted dolphins, while fountains were wrought into the design as accessory features. Before he could carry out his design Tuschler died and the idea of an equestrian statue remained in abeyance till 1755, when Saly made a new model on the same general lines as the Nuremberger's study; but it proved too costly for execution and in the following year he made a new model which was bereft of the supporting figures, and from this time until 1764, Saly was employed in perfecting the full-size model of the actual statue. From this it appears that, provided he had nothing to do with the casting of the statue, he was free to accept Catherine's invitation if she ever extended one.

Belonging to the same epoch, though somewhat earlier than Peter the Great, and having no direct connection with the events which that monarch influenced, was Christian V, first hereditary King of Denmark, and great-grandfather of Frederick V, a potentate of no very great force of character, nor one whose martial deeds were particularly deserving of monumental record. Still, as he did wage successful war with the Swedes and their French allies until deserted by his own Dutch and German allies, it is proper enough that the equestrian statue, of heroic size, erected in his honor in the Kongens

Nytorv, or market place, at Copenhagen, should represent him in the guise of a helmet-wearing Roman warrior.

This group is one of those interesting compositions which, after the manner of the time, was executed in lead and then gilded. As a consequence of the yielding nature of the material, the sculpture is somewhat set awry by settlement; the horse's uplifted foreleg is distorted, while the other is unduly penetrating the horse's chest, which folds over the upper part of the limb in a large fold.

The sculptor, Abraham César d'Amoureux, represents the king as trampling upon the prostrate figure of Envy, a part of whose duty it is to give support to the horse's advancing foreleg. Seated about the pedestal, two upon each longer side, are four unduly large figures, which represent: Wisdom in the guise of Minerva, Force personified by Hercules, Magnanimity in the person of Alexander the Great, and a typical figure which symbolizes Glory. The group was erected in 1688, the eighteenth year of Christian's reign, a date, moreover, familiar to students of English history, since in that year William of Holland, Prince of Orange, landed at Torbay, in England.

PETER THE GREAT.—Peter the Great, Czar of Russia, was born at Moscow, June 10, 1672, and was the third son of Alexis Mikhailovitch. Feodor, the eldest son of Alexis, died childless in 1682, and Peter was recognized as his successor in preference to his younger brother Ivan, who was of feeble mind. Their ambitious sister Sophia, however, incited a bloody mutiny among the Strelitzes, and secured the proclamation of Peter and Ivan as joint sovereigns. Sophia acted as regent until 1689, when she was confined in a convent, and Peter began to reign as sole autocrat, marrying Eudoxia Feodorovna the same year. Peter was endowed with violent passions and indomitable energy, and in the early years of his reign determined to reform the institutions, governmental system and customs of Russia, which lay far behind other European countries in civilization. He first organized an army with the European discipline, entering its ranks himself as a private soldier, and then gave much attention to the founding of a navy, learning practical seamanship, and employing many foreign engineers, shipwrights and artisans. In 1696 he captured Azof from the Turks by the aid

of his new navy; in 1697 he visited Holland *incognito*, working for wages as a shipcarpenter at Saardam, and in 1698 spent about three months in England. Returning to Moscow, he punished with great severity the Strelitzes, who had rebelled in his absence, afterwards disbanding them, and introduced many useful innovations in the way of education, literature and trade. In 1700 he became the ally of the Kings of Poland and Denmark against Charles XII of Sweden, who defeated the Russians at Narva in 1703, but who, after a vigorous campaign, was himself finally overthrown at Pultowa in 1709. In 1703 Peter had founded St. Petersburg, and in 1711 he married Catherine, a girl of low origin, who afterwards became Catherine I. He carried on a war with Turkey, which was ended in an unfortunate manner for Russia, only restoring peace by giving up Azof and Taganrog in 1711, but prosecuted successfully the war against the Swedes in Pomerania, conquering Finland. This war of twenty years was ended in 1721 by a treaty of peace which involved mutual cessions of territory. In 1716 Peter again visited Europe, and in 1718 his eldest son, Alexis, who had long opposed him, was poisoned, it is apparently proved, by his father's orders. Peter founded the Academy of Sciences about 1724, and made many internal improvements, especially fostering the growth and importance of St. Petersburg, where he died in the early part of 1725.

FALCONET.—Etienne Maurice Falconet, born in Paris in 1716, was a pupil of Lemoyne. He was admitted to the Academy in 1754, and was afterwards appointed professor and rector. His first success was won in 1745, when he exhibited his group of "Milo of Crotona devoured by a Lion" now in the Louvre. Among his other works may be mentioned the following (in addition to a number of decorative sculptures, and of statuettes and groups for clocks, vases, candelabra, etc.): "The Genius of Sculpture"; "France embracing the Bust of Louis XV"; "Music"; "Young Girl holding a Garland of Flowers"; "Love"; "Nymph entering the Bath"; "Sweet Melancholy"; "Pygmalion and the Statue"; and "The Agony of Christ," the latter made for the Church of St. Roch. A great number of his works, executed for churches, were destroyed during the Revolution, including an "Assumption," made for St. Roch. In 1766 Catherine II of Russia invited him to St. Petersburg, and charged him with the execution of a colossal equestrian statue of Peter the Great, which he successfully carried out; but, not being adequately paid for his labors, he quitted Russia and returned to France, where he died in 1791.

COLLOT.—Marie-Anne Collot was born at Paris in 1748, and became a pupil of the sculptor Falconet, whose son, Pierre Etienne Falconet, a painter, she afterwards married. She accompanied her master to St. Petersburg, where she modelled the head for his statue of Peter the Great, and was made a member of the Academy of Fine Arts of that city. Her work consists mainly of portrait-busts, among which are those of the two Falconets, father and son; of the actor Freville, in the character of "Sganarelle"; of Diderot, and of Prince Gallitzin. She died in 1821.

FREDERICK V.—Son of Christian VI: succeeded to the throne of Denmark August 6, 1746; died January 12, 1766.

SALY.—Jacques Francois Joseph Saly was born at Valenciennes in 1717, and became a pupil of G. Coustou, the younger. He was invited to Copenhagen and appointed Director of the newly-founded Academy of Fine Arts. While there he executed an equestrian statue of King Frederick V. His other works include "Love," "Hebe," "A Young Faun carrying a Kid" and a marble statue of Louis XV, erected at Valenciennes in 1752, which was destroyed by the Revolutionists in 1793. He etched thirty designs for vases and four for monuments. He returned to Paris in 1774, and died there in 1776.

CHRISTIAN V.—Christian V, King of Denmark and Norway, born in 1646, was the son of Frederick III, whom he succeeded in 1670. He made a treaty of alliance with the Dutch against France and Sweden in 1673, and was partially successful in a war against Sweden, which was concluded by a peace in 1679. In 1693 he published a code which bears his name, and died in 1699 of a wound received in hunting.

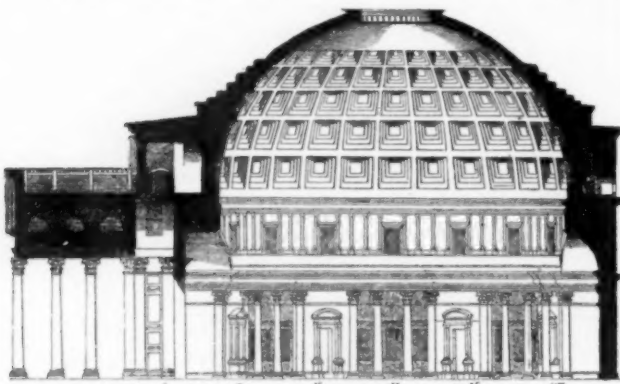


Christian V, Copenhagen. d'Amoureux, Sculptor.

AMOUREUX.—Abraham Cesar d'Amoureux was born at Lyons in 1644, and studied under N. Coustou, the elder. He executed several bas-reliefs and other works in various Lyons churches. He was invited to Copenhagen in 1682, where he executed the equestrian statue of Christian V, King of Denmark.

(To be continued.)

ARCHITECTURE UNDER NATIONALISM.¹—V.



Section of the Pantheon at Rome.

THE Romans were "marvelous builders, nothing more." "That which is admirable in the Roman architecture of the Empire is the manifestation it presents of a powerful organization." The Roman, says Viollet-le-Duc "disdained art, but did not persecute it, nor did he modify it with the prejudice or caprice of an amateur: he did not enter into the question of creeds of any kind, he exacted nothing but respect for his law and submission to his administrative and political system; little would he sympathize with your concern about adopting this or that form, provided you kept to the practical conditions he imposed upon you; such matters were your affairs, not his. But art is like religion also in this, that mere toleration is not enough for it; it requires, lives by, sympathy; and when it exists among people who content themselves with not being hostile to it, who excite it neither by adhesion nor criticism, it must necessarily decline: this explains why art may decline even under a powerful and flourishing empire like that of the Romans up to the time of Constantine."

Roman architecture was grand, magnificent, but also vulgar, because the construction and decoration had no relation to one another; you may remove its apparent form, its casing of "orders," without prejudice to its stability.

The initial cut represents in section the Pantheon at Rome. The construction and simple method of lighting is admirable, but the treatment of the decoration is abominable. The double row of orders veneering the interior walls have no constructive propriety, are out of all harmony with each other and appear crushed under the colossal details of the vault above.

But in spite of the false decoration, there is an element of grandeur and stability coming from the solid construction of the great Roman buildings which goes far to compensate for their defects. Size and stability are alone sufficient to produce grandeur in architectural design, and as Fergusson says "where sublimity is sought, they are the two elements most essential to its production, and in fact the two without which it cannot possibly be attained." Now, under the competitive system of industry, the majority of our mercantile buildings must be built for competitive purposes, which necessarily prohibits any greater solidity than is absolutely necessary to serve the immediate end in view. The risk in every financial enterprise is too great to permit of any permanent and monumental style in these buildings. Fortunes are made and lost in a day, and architecture must faithfully reflect this condition. The risk increases every day with the increasing social discontent arising from material inequalities, and instability in our architecture must result from the instability of our fortunes, and it has of late been seriously proposed by some of our merchants to construct their warehouses of wood covered with sheet metal, rather than stone, on account of fire-risks, and in the city of Lynn this idea has actually been carried out since the recent fire.

Viollet-le-Duc truly says "We must look upon all that is not made for the public—the entire public—as transient."

Accordingly we find in this feature of insecurity and the consequent loss of an essential element of architectural beauty, solidity, a sixth influence adverse to the attainment of a grand style under the existing system of industry.

Nationalism, on the other hand, will furnish all the elements of social stability, and, for the first time in history, the absolute security necessary for the perfect development of the arts, whereby will be attainable in architecture not alone grandeur but sublimity, the most impressive form of architectural expression.

Another marked characteristic of the Roman architecture was vulgar ostentation, the sole desire to produce an outward effect of

wealth and power. The Roman Empire was made up of three classes; first, the wealthy class, absorbed in political intrigues; second, the free plebeians, who were barbarous and corrupt, the tools of the demagogues and wealthy patricians; and third, the slaves. The tendency of modern civilization is to reproduce these three classes, with whom a true art is an impossibility, and degradation a necessity. There is this difference, however, in the two states, namely, that the slaves in the villa of the Roman Patrician "were certainly better lodged and treated than are our servants; they had their separate building, their baths and their rooms for exercise or amusement. Without regard to their social state, these slaves were in reality more free, more happy, and more comfortably and wholesomely provided for than are the domestics of any wealthy householder of the present day, though indeed it is true that the former had an intrinsic value, and that their master was interested in preserving their health and strength." (Viollet-le-Duc). Yet such domestics are notoriously far better provided for than our poorer classes of wage earners.

I must be allowed to quote once more from the greatest of writers on architecture, Viollet-le-Duc, whose genius as a practical architect and engineer, and whose profound study of the theory and history of his art have placed him in the highest rank as an authority on all matters appertaining thereto. In relation to the subject under consideration he writes: "The Romans never discussed questions of artistic principle; they were never enthusiasts; they were politicians and legislators; . . . they administered but did not civilize. . . . Subjected to the Romans, the Greeks were only skilful practitioners; and this establishes the fact that, for them as well as for all other gifted nations, self-government is the only condition for the healthy development of art. . . . A man cannot undertake to tame a barbarian (and, to the Greek, the Roman was barbarous) without becoming somewhat of a barbarian himself; and woe to the artist who yields to a master without sympathy for matters of art! The Greeks, then, very sensibly, did not amuse themselves by discussing questions of style with the Romans, for they knew they would not have been understood, and, while submitting to the rigorous conditions imposed by the Romans upon their architectural problems, they contented themselves with the more humble duties of decorator,—their aim was only to gratify the pompous taste of their masters, and to charm them, if possible, by a brilliant, if not elegant, execution." As with the Romans, so with us to-day. "Making an appearance" has been the order of the day; for appearance has been readily taken for the reality, and the tailor has made the man more perhaps than at any other time. The question has been, who should make the most show. . . . Little sterling worth, great vanity and desire to make a display, and as the result of this a social condition in which envy becomes the prime mover; that is an incessant and immoderate desire to seem grander people than we really are, and a secret hatred for all that is produced superior to what we can exhibit. . . . The architecture suited to our times is not an art that is a mere luxury for the delectation of a few amateurs, a select portion of society; it must be an art which belongs to all. . . . It is an easy thing in architecture to make an imposing display, with plenty of money to lavish; the real difficulty is to give a perfume of art to the most common and the most simple things, and to know how to remain sober and unostentatious in the midst of splendor. . . . When art has become a mere matter of luxury to the few and an affair of simple curiosity and wonder to the many, then it has ceased to be true art, and has indeed relapsed into barbarism."

Accordingly, a seventh barrier in the way of our acquiring a worthy national style, under the existing social conditions, is the same which corrupted the architecture of imperial Rome, the inordinate desire for ostentation, especially on the part of the "nouveaux riches," a class rapidly increasing under the conditions provided by the "laissez-faire," or "private monopoly," system of industry.

Still another, an eighth, impediment to the growth of architectural art is due to the very opposite evil, namely poverty and parsimony. No sooner has the architect become interested in his theme, and elaborated his design with some artistic refinement, than he is directed to "cut down." The material is too expensive for the appropriation. A cheaper one must be substituted. An imitation or a veneer is ordered in place of the genuine material. A little here and a little there must be saved, until the work of art becomes a very commonplace affair indeed.

Of course, a due regard for economy does not of itself interfere with artistic expression. On the contrary, it has often been the basis and origin of style. But a parsimony, either voluntary or forced, which discourages all artistic effort, insists upon shams, and refuses improvements in sanitation and convenience, involving but a slight increase in cost, is an evil growing out of the existing absurd system of industry, of tremendous importance in its effect on the architecture of our country. Everywhere the eye is accustomed to the sight of mean and sordid structures, hardly one in a hundred showing even an attempt at artistic treatment, and thus the public taste and sympathy for the beautiful is blunted by the constant contemplation of the base, commonplace and uninteresting; and it is certain that a refinement or distinction in architectural style can result only from the prevalence of refined taste throughout all grades of society cultivated in an atmosphere of art.

¹I use, in my quotations from Viollet-le-Duc's "Discourses," the words of Mr. Van Brunt's admirable translation.

¹Continued from No. 766, page 135.

One illustration of the lamentable effect on our architecture of the false economy necessitated by the existing method of leaving to individuals duties and responsibilities which should be borne by the nation, must suffice under this heading.

There is no work which can more properly claim the highest wisdom and resources of the whole people than the education, both mental and physical, of our school children. Their training should be entrusted only to those who are most thoroughly equipped by nature and education for the work, and the schoolhouses should be built in the most perfect manner known to the art of architecture, not alone from a sanitary and truly economic, but also from an artistic point of view, all these items being necessary for the complete physical, intellectual and moral development of the children. This truth is admitted by every one, yet under Nationalism alone is its practical application possible. So long as the existing state of society lasts, many children will, and must, be turned over for their schooling to irresponsible and incompetent teachers, and confined in insanitary and unsightly school buildings, for the simple reason that the majority of small country towns and isolated communities, which, as compared with the nation, become nothing more than irresponsible individuals, do not and cannot possess the means and intelligence to do otherwise. Almost any architect can testify to the truth of this from instances coming within his personal experience. A particularly striking one, which must serve for my illustration is the following:

A Town Committee was appointed to build a schoolhouse. The Committee knew, of course, nothing whatever about the requirements of the building, except that it must be large enough to box in all the

applicable to our present subject is the study of their magnificent public baths—a study which Nationalism will render fruitful in a practical way. The Roman Empire set a noble example to all succeeding nations, of furnishing the whole people with the luxury and salubrity of public baths on a grand and liberal scale.

We, who call ourselves civilized, allow the masses to live in filth, though rivers and oceans of pure water flow everywhere at our feet, and machinery for transporting, storing, heating and cooling that water, far superior to that which the Romans employed, is at our disposal. Yet the poorer classes reek in filth, and loathsome epidemics spread over the whole community in consequence of our neglect.

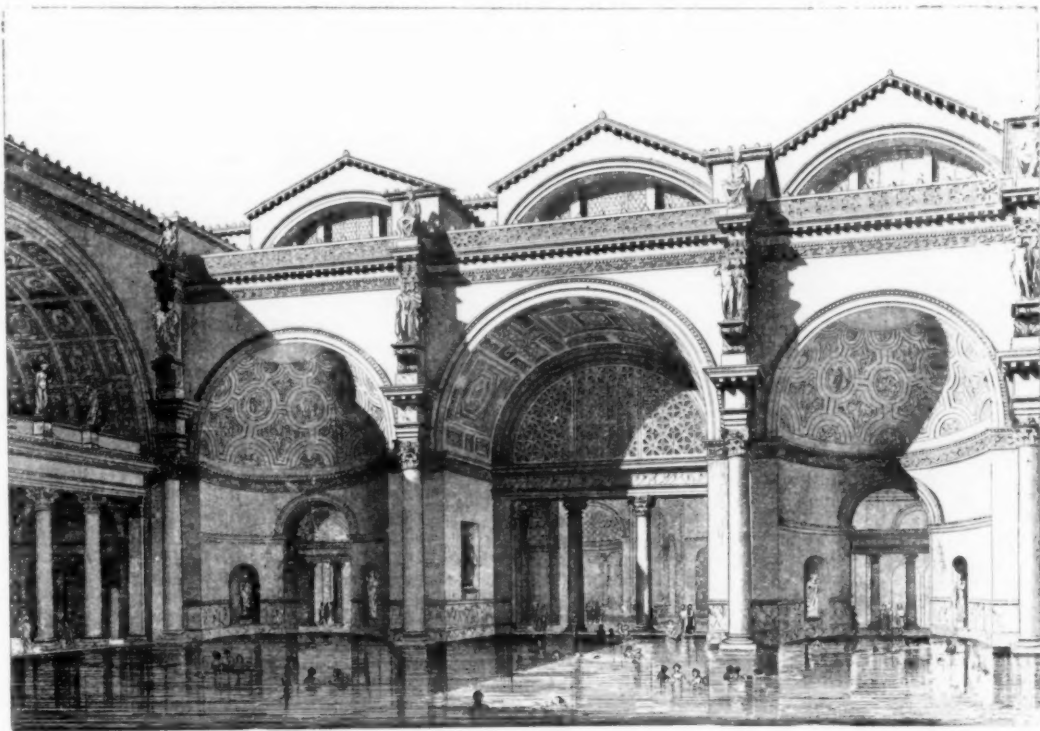
The magnificent baths of Caracalla, however, give us a faint idea of what Nationalism will do for the people in this direction.

The accompanying cut shows the masterly arrangement of plan of these baths, wherein a whole town could be accommodated.

In the front part of the building on each side of the main entrance are small private baths in two stories for those who do not care to enter the main building.

The main entrance to the public baths is through a grand portal in the centre of the front. We enter a vast building containing great swimming baths of cold, tepid and hot water, each with spacious vestibules, dressing and service rooms and other appurtenances and all grouped in such a manner as to give the utmost convenience of access and egress without draughts or danger from overcrowding or disorder.

Within the enclosure are gardens and fountains and courts for



Baths of Caracalla, Rome. From Viollet-le-Duc's "Discourses on Architecture."

children who could afford to go there, and that a certain sum of money had been appropriated for the purpose. The plans were drawn, however, with great care, especially as to sanitation. Ducts for foul air exhaust were carefully arranged, so as to perfectly ventilate all parts of the building at all times, and to the extent needed, without great expense either in first cost or in use, and the foul air was expelled by means of the heat of the smoke of the heating apparatus, through a somewhat ornamental chimney, prominent in the design of the exterior.

The committee sat on the design, accepted it with expressions of approval and ordered it to be executed under their own superintendence. It was executed. When the outside had been completed and the great ornamental ventilating chimney had been built, the committee decided to "cut down" in the expense of finishing, and all the ventilating ducts were, without a word's notice to the architect, quietly omitted! Absolutely no provision for air supply or exhaust was substituted in its place, and the magnificent exhaust chimney with its scientific flues, became a hollow mockery and an architectural monstrosity. To-day the miserable school-children are breathing over and over again one another's breath, while the townspeople look upon the mammoth chimney with as much pride and pleasure as if it were really performing its legitimate office of pumping pure air through the lungs of their children.

The lesson we have to learn from Roman architecture is not entirely a negative one. The construction and planning of their public buildings is worthy of the highest admiration. Particularly

games and gymnastic exercises, provided with seats for spectators. We find also porticos and pavilions for lectures and discussions and libraries and reading-rooms for study.

The perspective view represents a restoration of the cold bath, or *frigidarium*, which is the largest hall in this building.

It is open to the sky, under the principle that protection from rain is unnecessary for bathers in cold water in a climate like Rome. The warm bath, *tepidarium*, seen in the view beyond the three great arches, is roofed over, as is also the hot bath, *caldarium*.

A ninth reason for the decline of architecture under the existing system of exclusiveness and individualism, is that the sister arts of painting and sculpture have been divorced from architecture.

In the grand styles, the former existed with and for the latter, which, in its turn, was worthy of the distinction of claiming painting and sculpture as her handmaidens; and it was in the harmonious union of the three that the greatest distinction of each lay.

Then the artist forgot himself in his art, and we seldom find his name inscribed upon his works. Now the artist forgets his art in himself, and the aim of each individual is to make his own work the most prominent feature in the completed building, and each takes good care that his name shall appear in as conspicuous a place as possible. How could it be otherwise with the poor artist, whose family depend upon this advertisement, perhaps, for their privilege of existing!

Paintings and statuary are executed entirely apart from, and independent of, architecture, and when afterward they are brought

together, they as often mutually injure as improve each other through want of harmony of expression and scale.

Finally the tenth and last corrupting influence upon our architecture is the indifference of the masses to the essential element in design of truth.

The present is an age of hypocrisy and misrepresentation. Our whole social and industrial system is founded on the colossal inconsistency of permitting, in a nominally free country, one individual to practically own the soul and body of another. In a country where "all men are born with equal rights before the law," twenty-five thousand persons, in appropriating from the rest one half of all that is produced by the entire sixty millions, create a conflict under which nineteen-twentieths of the entire energy of the whole is wasted. Industrial warfare breeds dishonesty as its necessary fruit, and corruption even in the highest offices of the country has become so common as to be accepted as a matter of course.

With so general a disregard for the truth in everyday matters, we cannot expect to find a strict observance or appreciation of it in art, and so long as a system of industry exists which places a premium on dishonesty, falsehood will continue to appear everywhere in design. We shall continue to see columns whose form indicates the function of support, used as a decorative veneer upon façades where they support nothing; cornices and pediments elaborately designed with the sole view of shedding rain water, used in interiors where rain never falls; sham windows and doors built upon blank walls; buttresses erected against piers having no interior vaulting to sustain; walls massive enough in design to serve for a fortress or tower, supporting the lightest of structures, and cheap materials everywhere used in imitation of expensive ones.

Where such falsehoods exist, style in architecture is impossible, since style in art consists only in a graceful expression of the truth.

Thus we find that Nationalism will reproduce all the conditions favorable to the development of a noble style of architecture, and eliminate the many unfavorable ones at present existing.

With the great advances made in the present century in the science, materials and machinery of building, corresponding advances would have been made in the art of architecture had the social conditions been less adverse. For a more complex and perfect civilization permits of a higher form of art expression, just as, in the animal world, a higher type of beauty is possible with man than with the mollusc. So, in architecture, the higher civilization and the many new and peculiar conditions furnished by Nationalism must of necessity evolve a style as much nobler than any which has preceded as the civilization itself will surpass that of any other age.

As an illustration of the peculiar features which will distinguish this new style, we may take the element of "extensiveness." Buildings capable of accommodating the vast assemblies which the co-operative system in a great nation will bring together, must be constructed on a far grander scale than anything heretofore known, and new methods of construction will be required, involving the use of metal and all the science and skill of the engineer. Undoubtedly, by the use of aluminum and aluminum-bronzes in place of stone and wood, in vaulting framing and finish, a lightness, strength and power of resistance to fire will be attained, which will enable areas of a magnitude hitherto undreamed of to be safely covered without interior support, and thus this element of extensiveness, when combined with strength and refined with art, will yield a style of architecture incomparably grand, and fitly characterized only by the word sublime.

J. P. PUTNAM.

[To be continued.]

INACCURATE PLANS.



IS an architect liable for any incorrectness in his plans? From the general view held amongst the profession no very definite opinion can be gathered. Errors due to negligence are not usually of very considerable moment, and are often discovered before any cost has been incurred. Extras may be allowed in some cases, as, for example, should the foundations require to be taken down to a lower level than shown on the sections, or a wall made thicker than shown on the plans. It would be absurd to contend that the architect's plans and specifications should be perfect under all circumstances, or that no deviations should be found necessary to be made from them. Hence it is laid down that an employer is not liable for mistakes in plans and specifications, no warranty being implied on the part of the employer. The case of "Thorn v. Lord Mayor of London," where the plaintiff entered into a contract with the City authorities to construct a bridge over the Thames according

to certain plans and specifications prepared by the engineer of the Corporation, is cited. It was found that the method proposed in the plans of forming the caissons and foundations could not be carried out, and the contractor adopted another plan, with the consent of the engineer, and sought to recover the expenditure he had been put to in carrying out the plans. It was held there was no warranty on the part of the defendants that the plans could be carried out in all respects. This decision has perhaps given rise to an idea that the architect or engineer is exempted from any liability on this score; that as there is no warranty implied on the part of employer, therefore there is none implied on the part of the architect. But he stands in a different position in relation to the employer. He must display a "reasonable degree of skill and care," for if any damage is suffered by his employer on account of his negligence or want of skill he is held responsible. But we know that this liability is disputed by many. There is a generally received opinion that the architect does not warrant the correctness or practicability of his plans and specifications, or bills of quantities; that any errors or inaccuracies are pardonable unless they arise from fraudulent intention. Under this conviction we find clauses inserted which throw any discrepancy or mistake on the contractor, or do not hold the architect liable for errors found in any of the documents.

The law has certainly not expressed itself very clearly on the point in question. In one instance where a surveyor gave an inaccurate valuation for the purpose of mortgage, it was decided that he was liable for the loss occasioned to the firm who negotiated the advance on the strength of his valuation, the judge holding that if one supplies anything for a given purpose, he is liable, independently of contract, if the thing supplied is so unfitted for the purpose as to cause damage to the person using it. In this case there was no contract between the valuer and the negotiators of the advance; but the latter were losers, inasmuch as they advised their client to advance a sum of money to the mortgagor, who appointed the valuer. The bearing of this case on plans and other documents is evident. If the contractor has no case against the employer for inaccuracies in the plans and specification, he can claim against the architect for negligence or error in the preparation of documents upon which the tender has been based; also if he cannot show reasonable skill in the design or plans, or neglects to discharge his duty towards his employer, or allows improper materials to be used, he renders himself liable. These are disqualifications that a jury will have to assess at their proper value. The nature of the contract is the point that a judge and jury would take into consideration. If a client required a plan prepared for a particular purpose, and the architect failed to fulfil the intention, he would, no doubt, be held responsible; but if the plans were the joint result of employer and architect, and they did not answer the purpose intended, it is extremely doubtful whether the architect could be made responsible on the ruling in the case of "Hall v. Burke." In the majority of agreements, verbal or implied, between architects and their clients, the first-named assumption holds good. Plans and specifications are prepared for a certain building, the employer leaves the matter entirely to his professional adviser, and relies upon his skill and discharge of duty. The building is imperfect, or failure of some portion occurs owing to neglect, and the employer naturally seeks compensation or claims damages.

The importance of making a provision for errors or omissions in drawings which form part of a contract is obvious, and a clause to this effect should be included in the contract. The following is a form for one that has been suggested:—"The contractor agrees to make no claim against the proprietor in respect of any error, discrepancy, omission, or insufficiency in the said drawings, or on the ground that any portions of the works shown upon the said drawings are of unsuitable or of insufficient design, dimensions, or materials; and the said contractor agrees to supply and execute all additional materials and workmanship, if any, which may be required by reason of such errors, discrepancies, omissions, etc., and such shall be deemed to be part of the works to be done under this contract, and to be covered by the contract sum." A provision to this effect would save a great deal of after-disagreement by throwing the responsibility on the contractor, who, to protect himself, would be compelled in many cases to add a percentage for contingencies of this description, especially when the plans and specifications appeared to be hastily prepared or defective. We should rather be inclined to word the clause a little differently—to the effect that before signing the contract, the contractor should examine and compare plans and specifications, and point out any discrepancy, or omission, or insufficiency that he might discover in them, with a view to their correction or explanation, no claim or allowance being made afterwards.—*Building News.*

A LARGE BAROMETER.—A large water barometer is now in use in the Saint Jacques Tower, Paris. The glass tube—the longest that has yet been made—is 12 metres 69 centimetres long, or 41 feet 8 inches. The diameter is 2 centimetres. Special openings in the tower were required to allow it to be put in its place. It is connected with a registering apparatus, and it is proposed that a photographic apparatus shall be associated with it, in order that the thermometrical readings of the water in the barometer may also be obtained. The instrument is a very curious one, and may render many services in consequence of its considerable sensitiveness. During thunderstorms it is said to be especially active.—*Invention.*



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

DOORWAY TO HOUSE OF E. L. DAVIS, ESQ., COMMONWEALTH AVENUE, BOSTON, MASS.

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

THE CARLSBRUCKE, PRAGUE, BOHEMIA.

THANKS to having made most persistent use of that invaluable ally of the travelling architect, the convenient little "Kodak," this spring, we are able to show this week several views taken on and about that extremely interesting structure the Carlsbrücke at Prague, which had the misfortune to be partially destroyed last week by the great flood that swept down the valley of the Moldau. The bridge is composed of sixteen stone arches and was built between 1357 and 1507, as were also built the two towers that guard either end of the bridge. These towers alone would make the bridge a fit goal for the sight-seer, but when to their attractions are added those of the thirty groups of saints placed upon the stone parapets, singly or in groups, the structure becomes one of those unique creations of art that no man can afford to pass near and overlook. Most of the statues are the work of eighteenth century sculptors, although some have been added in our own time by Josef Max and other artists. In spite of these statues being conceived in the Rococo spirit of their time, they are executed with great skill and are noteworthy for this, but even more for the great degree in which the sculptors have succeeded in making them exhale, as it were, an influence of religious teaching. To each of the groups is attached a special history, but as we do not know just which ones our views represent it is useless to recount them. The large and complicated group in the upper right-hand corner of the sheet is the last group upon the left-hand as one crosses the bridge from the Altstadt, and it represents, amongst other things, a group of souls in Purgatory who can just be seen within the grotto. The other figures in some way commemorate the expulsion of the French invaders and the cessation of a visit of the plague. The central figure at the top of the sheet is a bronze figure of Charles IV, which stands not upon the bridge itself but just beside the bridge tower in the Altstadt. All the groups upon the bridge are of stone.

DEPOT OF THE GULF, COLORADO & SANTE FE R. R., DALLAS, TEX. MESSRS. PERKINS & ADAMS, ARCHITECTS, TOPEKA, KAS.

It is proposed to construct the exterior walls of Hakey Grave stone, trimmed with Pecos red sandstone; black slate roof; calcimined rough-cast plaster on interior; woodwork of Texas yellow-pine; copper cornice.

STATUE OF PETER THE GREAT AND THE CATHEDRAL OF ST. ISAAC, ST. PETERSBURG, RUSSIA.

See article on "Equestrian Monuments" elsewhere in this issue.

WAREHOUSE FOR THE SAMUEL CUPPLES REAL ESTATE COMPANY, ST. LOUIS, MO. MESSRS. EAMES & YOUNG, ARCHITECTS, ST. LOUIS, MO.

[Additional Illustrations in the International Edition.]

"IN DEN KLEINEN ZALM," MALINES, BELGIUM.

[Gelatine Print.]

In spite of the obtrusive inscription upon one of the buildings it is but an annex to the real home of the little salmon, which stands at the right of it and whose real sign is the bas-relief of a large salmon over the doorhead. This range of buildings is not far from the Maison du Diable, a view of which was published last week.

TWO FRAGMENTS OF THE BACCHIC PROCESSIONAL FRIEZE FOR THE HOFBURG THEATER, VIENNA, AUSTRIA. PROFESSOR RUDOLF WEYR, SCULPTOR.

[Gelatine Print.]

ENTRANCE TO THE HOTEL CIPIERE, TOULOUSE, FRANCE.

[Etching.]

We are gratified at being able to announce the raising of the embargo laid upon our French supplies by the New York Custom House, aided by the blunders of forwarding agents on the other side of the Atlantic. We cannot promise that a similar delay may not happen in the future, but in such case, we trust our subscribers will bear with us as good-naturedly as in the present instance.

SIENA: PORTION OF PAVEMENT. DRAWN BY MR. F. MASEY.

THE CAMPANILE, SIENA. DRAWN BY MR. F. MASEY.

DESIGN FOR A MEMORIAL HOSPITAL FOR CHILDREN. MR. HOOPER, ARCHITECT, LONDON, ENG.

This design was prepared for a building proposed to be erected in the outskirts of a large manufacturing town in the North. The accommodation provide two large wards with twenty beds for boys and twenty beds for girls, together with four separation wards each containing three beds. The large wards have their duty-room, bath-room, nurses' bedrooms and lavatory, with an open veranda at one end for the use of the little convalescents. The wards are lighted from side windows in the east and west walls, between which the beds are placed, the heating being by two stoves in the centre of the ward. The committee-room, doctors', matron's-rooms, etc., are in the first portion of the administrative block, with the nurses'-rooms over. The consultation-room, surgery and operating-rooms are near the patients' entrance. The housekeeper's-room and dining-room are at the back. A porter's lodge, a laundry and a mortuary are provided in the grounds. The materials proposed are red-brick walling with stone bands, and green slates on roofs. The perspective view is by Mr. W. H. Bidlake, of Waterlow Street, Birmingham, and was exhibited this year in the architectural room of the Royal Academy.

A THEATRE FACADE BY MR. W. T. HORTON.

The objects aimed at in the above design are:—1. Simplicity, relying more on proportion and the harmonious combination of parts than upon mouldings and carving. 2. Plain surfaces to strengthen the design and rest the eye. 3. The elevation is an attempt to carry out the characteristics of the plan. 4. Ornamental part reserved for the topmost story, so that the eye glancing upwards would take in the whole building, and would not be arrested as it otherwise would be if the ground-floor story was ornate and the upper one plain. The design is intended for a theatre to be erected in a street with houses on both sides. The original drawing was exhibited this year at the Royal Academy.



[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.]

THE DOME AS AN ARCH.

September 1, 1890.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—In making my inquiry of Mr. Berg through your journal, in my letter dated July 25, I had no idea of beginning a controversy with that gentleman, whom I wish to thank here for his extended answer in your last number. But before dropping the subject, and not with any purpose of continuing any discussion, I wish to state that to my mind Mr. Berg has not given sufficient reasons for treating the dome as an arch.

In regard to the first paragraph in his letter of August 21, I maintain that the last complete circular ring does not receive the horizontal thrust of the lower part of the dome; but that each and every ring is prevented from falling inward, owing to the joints between the individual stones of each ring being radial lines diverging from a centre on the axis of the dome; the vertical joints also converging to the apex of the dome.

The inner edges of the stones of each ring therefore receive all the inward horizontal thrust of that ring, and therefore none can be imparted to any portion on the dome lying inward. The horizontal thrust outward is received by the portions of the dome lying below each ring, as each ring can spread in that direction. This makes the great difference between the dome and the arch. As I stated in my letter of August 14, "the dome has a constantly diminishing thrust towards the crown; an arch has the same horizontal thrust throughout its span."

The item referring to the Spanish floor-arches is rather foreign to the question. The writer is willing to admit the great cohesive quality of good mortar, and would like to say here that he thinks more experiments should be made and more definite knowledge obtained than we now possess regarding this matter. This element of strength in the dome, the arch, the wall (over openings for instance), etc. is completely ignored by many writers on the engineering of building.

Mr. Berg would seem to make light of the point raised by me in my letter of August 14, that when an arch is loaded at the crown, say, with a lantern, it would cause all vertical joints to open, these making the dome composed of a series of radial arches from springing to apex.

Not to take up too much space in your journal, I would refer to Cain's book on "Voussoir Arches," No. 42, Van Nostrand's Series, page 189, paragraph 107. I should also like to refer to page 177 of the same book: it somewhat modifies what is said by me in this letter in regard to the first paragraph in Mr. Berg's letter. But the modifications are of so small an extent that it will only confuse the main point I wish to make, to mention them here. It is scarcely worth

while mentioning in detail the latter part of Mr. Berg's letter, as I think if my idea of the dome is right, then the correct reasoning on the point raised is very clear.

But let me say that the stresses in a spire of twenty or of four sides would be controlled by the same principles, provided each of the sides were one piece, mitred at the angles, or if the angles were solid and a joint extended from the bottom to the apex of each side. Such a construction, composed of horizontal sections placed in order on top of each other, would follow the same laws as a dome. But if its sides were composed of rectangular blocks caused by having more joints than named above, then the "dome" principle would not apply, as each horizontal course could not protect itself from falling inward.

In regard to the ribs of the vaulted dome: when there were so many ribs that they would all be in contact, and when they were made tapering from springing to crown, we should have a "dome" construction, otherwise not.

Taking the eight spherical trapezoids: if they were of any practical thickness and jointed as mentioned above for the spire, we should have a "dome" construction. But if of paper, as in the example, the joints would have no opportunity to act on each other, thus making the ring mentioned necessary near the apex. If the joints could act as in the spire mentioned above, then the ring would not be necessary. A real dome of masonry would of course have to be composed of a number of spherical parallelepipeds, both about its circumference and its height.

Most respectfully, D.

HAND-BOOK OF ENGLISH CATHEDRALS.

BALTIMORE, 1890.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Can you inform me (through your magazine) whether "Murray's Hand-book of English Cathedrals" can be obtained in the United States, and what the price is?

Yours, respectfully, ALBERT M. GRAY.

[MESSRS. LITTLE, BROWN & CO., 254 Washington Street, Boston, usually keep Murray's Hand-books in stock. The price varies for those which treat of the cathedrals according to the number of cathedrals included in a given volume. Twenty-seven cathedrals described in eight volumes cost about \$30, though they can be picked up at second-hand book-stores for less than half cost.—EDS. AMERICAN ARCHITECT.]

NOTES AND CLIPPINGS

SHRINKAGE OF CASTINGS.—In locomotive cylinder, one-tenth of an inch in a foot; pipes, one-third of an inch in a foot; girders, beams, etc., one-third of an inch in fifteen inches; engine beams, connecting-rods, etc., one-third of an inch in sixteen inches; large cylinders, say seventy inches diameter, ten feet stroke, the contraction of diameter, three-eighths of an inch at top; ditto, one-half inch at bottom; ditto, in length, one-third of an inch in sixteen inches; thin brass, one-third of an inch in eight inches; thick brass, one-third of an inch in ten inches; zinc, five-sixteenths of an inch in a foot; lead, the same; copper, three-sixteenths of an inch in a foot; bismuth, five-thirty-seconds of an inch in a foot; tin, one-quarter of an inch in a foot.—*Scientific American.*

HOW SIR JOHN MILLAIS SOLD HIS FIRST PICTURE.—Miss Frith, the daughter of the distinguished R. A., sends to the *Toronto Week*, the literary journal which was so long associated with Mr. Goldwin Smith, an interesting incident in the early career of Mr. Millais. It is related by her father, and runs thus—"At the Artists' Benevolent Fund dinner the other day, where Millais was in the chair, he told us of something that had happened to him when he was a boy, which I don't think has ever been in print. When Millais was painting the 'Ferdinand and Ariel,' a dealer who saw it said if, when it was finished, he liked it as much as he did then he would buy it for £100. Millais was jubilant. He was living with his father and mother, and, as they were badly off, the money, which they made up their minds was quite secure, they anticipated, and the greater part was spent. At last 'Ferdinand' was finished—do you recollect it? It was painted when Millais was twenty, in '49, in his pre-Raphaelite days, and was exhibited with a lot of his others some years ago in Bond Street—and the dealer was asked to come. But it was no good. 'I promised when I was here before to have the picture if I liked it,' he said. 'But I don't like it, and I won't buy it,' and off he went. When the anxious old people were told in the other room, you can imagine their distress. There was nothing to be done but to retrench. So 'Furnished Apartments' was written out on a card and wafered to the front parlor window, and the family sat down to wait for a lodger who was to mend their broken fortunes by helping with the rent. A week or two after this another dealer dropped into the painting-room just to look round, bringing with him an old gentleman in a blue coat and brass buttons. Millais showed them what he was doing, and the strange old gentleman listened with sympathy to the story of the disappointment, looked attentively at the 'Ferdinand' on the easel, and seemed to know a great deal about pictures, and to care for them. To Millais he gave some kindly advice, and finished by pulling a book out of his pocket, a book he particularly recommended to young artists. 'I'll give you this copy,' he said, 'if you will promise to read it. And if you will fetch me pen and ink I'll write your name in it.' So the old gentleman in the blue coat and brass buttons took the volume to a side-table in the painting-room, wrote in it, and brought it back to Millais. 'Mind you read it now, mind you read it; it will do you good,' he kept on repeating. As Millais was letting them out of the front door the dealer contrived to

whisper that his companion was Mr. Ellison—that Mr. Ellison, by the way, who afterwards left pictures to the Fitzwilliam Museum in Cambridge. So Millais, on returning to his work, opened the book which had been so highly recommended by this judge of art, whose name of course he knew, and as he opened the covers there fell out a check for 150 guineas, signed by Ellison, for the 'Ferdinand.' There's a delightfully surprising way of selling a picture. Do you know what Millais declares was the first thing he did after telling his people? From the window he unwafered that 'Furnished Apartments' card and tore it up; and since that day he says he has never had occasion to call in the help of lodgers.—*The British Architect.*

THE ADVENT OF THE STEAM PUMP.—Perhaps one of the best examples of a mechanical device working its way into great prominence against early prejudice is found in the steam pump. When the late Henry R. Worthington invented his direct-acting steam pump, and proposed to use it for feeding boilers, says the *American Machinist*, he was met by engineers to whom he showed it with the remark that, while it was ingenious and all that, no one wanted such a pump. This was the first reception of a machine which, in various forms and modifications, made by different manufacturers for different purposes, is in use in every civilized country in the world, and on board every steamship. No one doubts its utility, or its influence on mechanical progress. Perseverance won in the instance of the steam pump, as it has in the instance of many another invention. It is not wise to drive bull-headed against all mechanical opinion, and it is equally unwise to be turned aside by every contrary opinion. Mr. Worthington's belief in himself has been an excellent thing for the world.—*Invention.*

TRADE SURVEYS

The only weak spot in the business situation to-day is the uncertainty which business men everywhere feel in regard to money. The possibility of a stringency may do more harm than an actual stringency. Vast amounts of money are being invested from month to month in all manner of enterprises in all parts of the country, under the presumption by the investors that creditors and debtors will be able to promptly make monthly and quarterly settlements. Nothing would more quickly check enterprise than a well-grounded fear of inability on this point. The daily ups and downs of the stock-brokers' and money-lenders' market is not always to be taken as indicating actual conditions, however. The papers give it out that all is and will be smooth sailing, but business men know that money is close. The point of inquiry engaging the attention of many is: Will trade and enterprise continue to be threatened by possible stringencies? There is very little light on this point. Apart from this feature, everything is in good shape. The country is facing towards reciprocity legislation. Tariff agitation is about over. Silver legislation is pointing to good results, and business views rather than political views are directing legislative councils. Railroads are showing good earnings. Settlements are satisfactory. A few commercial failures serve to keep the eyes of business men on ugly possibilities. Bankers are pursuing a liberal and wise course with customers. Very few wild-cat undertakings are heard of. Legitimate enterprise has every desired opportunity. Genuine opportunities are opening up. Combinations of capital continue to be made, nearly all in the natural direction of legitimate growth and expansion. Conditions are changing. New and greater necessities and requirements are arising, and men of capital must adapt their measures and efforts to these requirements. Hence trusts and combinations, concerning which there is more or less foolish talk. No one objects to the ten-wheel Mogul locomotive, and advocates the retention of the earlier forms and sizes of engines. The foundation is being laid by circumstances for a still more general movement in the direction of combinations of capital and managements, and no pessimistic opposition will avail. The spirit of reorganization is at work everywhere, and through it economies and advantages will be worked out and capacities effected which can never be attained under present conditions. In this change individual rights and interests cannot suffer. The manufacturing and the building interests throughout the country are thriving. Builders have escaped many threatened dangers. Even in the hot-bed of agitation, Chicago, conservative labor views are asserting themselves. Work is more abundant now than last spring. House-building in small cities and towns is employing more capital and labor than has ever been known. This is not only true with reference to the manufacturing States, but also of the agricultural States. Lumber, iron, steel, glass, builders' hardware and everything which goes into construction is, according to the authoritative statements of builders' exchanges, architects, contractors and others, in greater demand than has ever been known. With, perhaps, one or two exceptions, the investments in building operations in Atlantic coast cities have been larger than last year, and so far as the expression of opinion has been made, next year will be fully as busy a year. The cheapening of the cost of steam power and machinery, and the utilization of artificial fuels and of electricity, have made it possible for the little manufacturer to locate afar off and build up a paying business, especially as the rate of freight is now in his favor under the new railroad rate law. To the engineer and machinist is due much of the credit for dispersing manufacturing interests. The lumber manufacturers have sawed up and sold as much lumber as last year, and new saw and planing mills are springing up, especially in the yellow pine and Southern hard-wood belts. The iron trade shows increasing activity. Machinery-makers are extremely busy. Bridge-builders are now in the market contracting for several thousand tons of material. Electricians are engaged on a vast amount of new work for both light and power. Textile manufacturers have increased their labor force. Southern cotton mills are nearly all making money. Estimates as to the extent of the coming cotton crop place it variously from 7,500,000 to 8,000,000 bales. The latest crop estimates of Western cereals are more favorable than those of a few weeks ago, and a foreign deficit of 150,000,000 bushels of wheat is regarded as a favorable factor for the American wheat trade. The usual amount of lamentation is heard in certain quarters that the country is heading for bankrupt conditions, that the rich are getting richer and the poor poorer, that railroads and monopolies are threatening the vitals of the people; but the great body of the people are busy and contented, and are good-naturedly struggling along in the ceaseless struggle for better conditions.

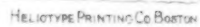
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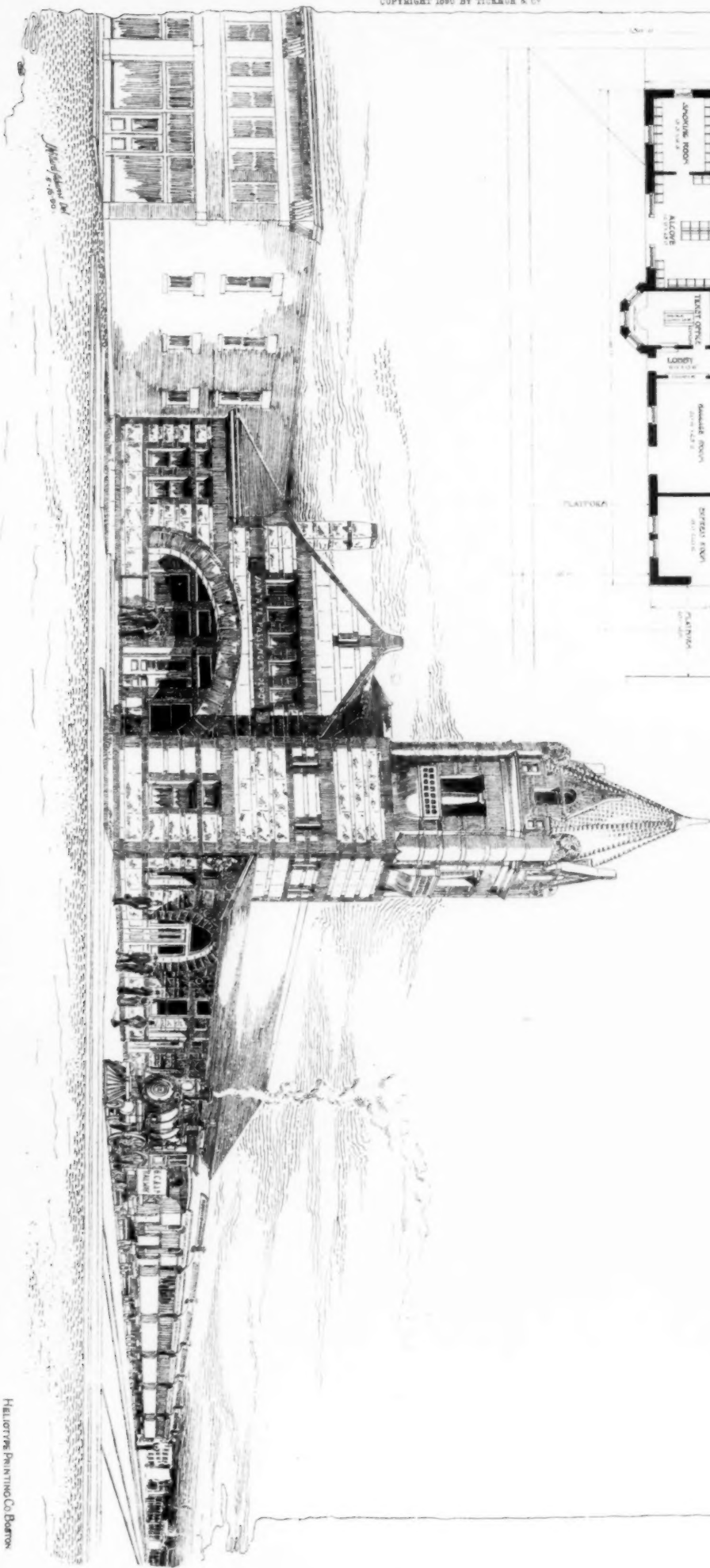




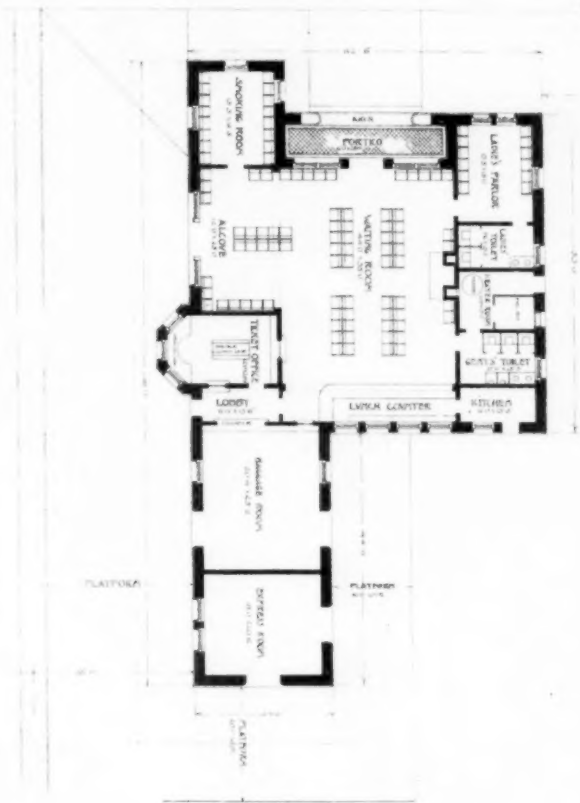
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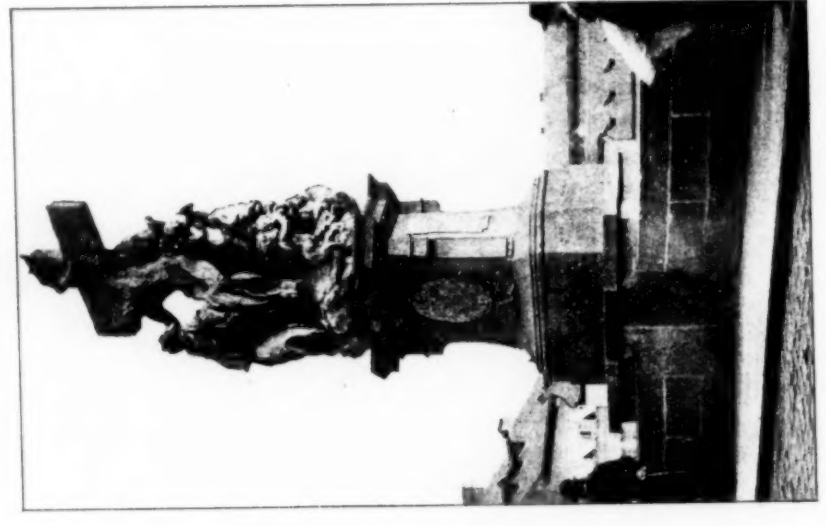
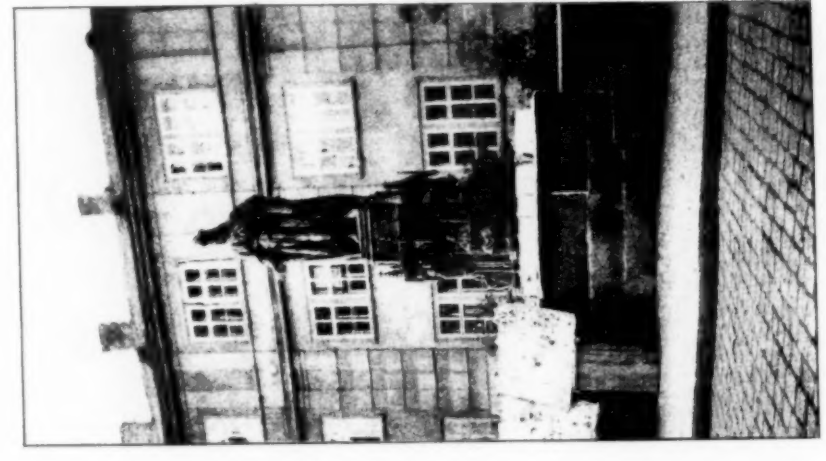
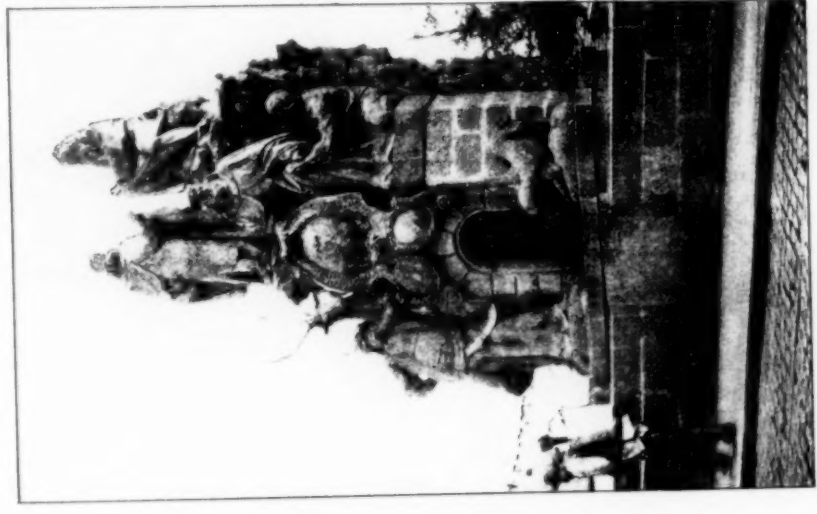


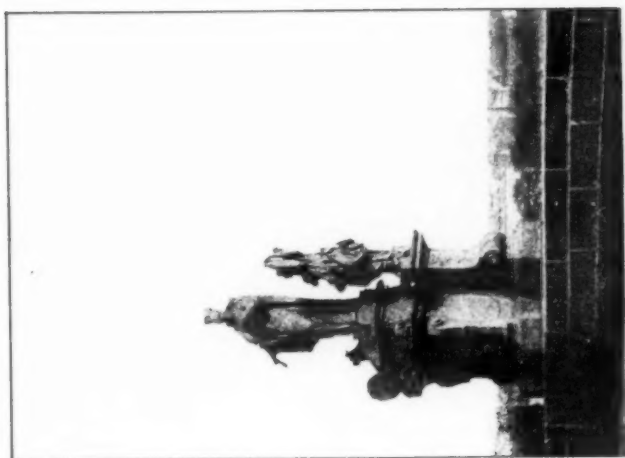
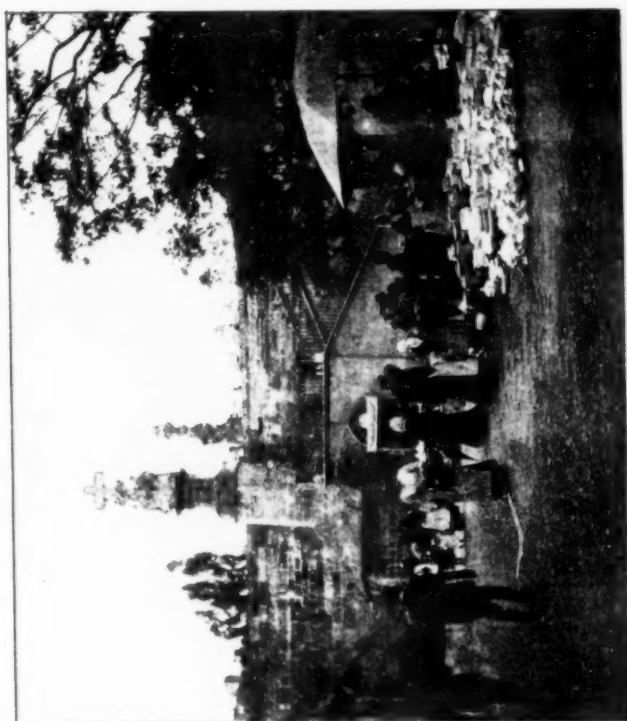
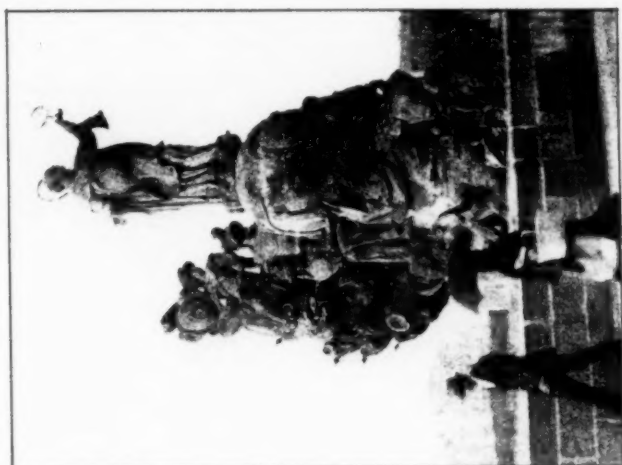
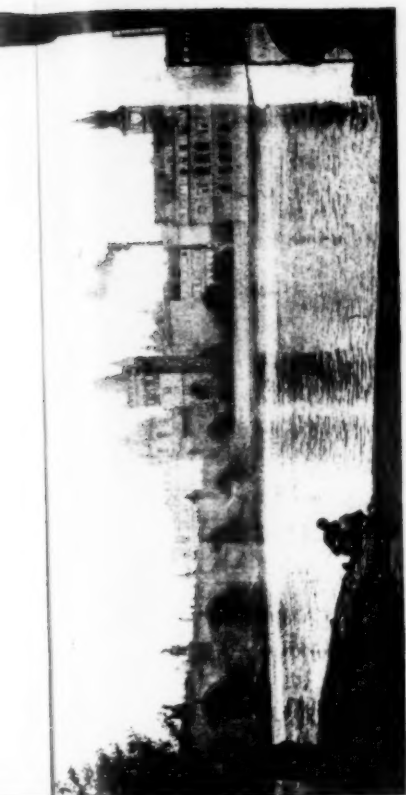
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