Entered as second-class matter at the Boston, Mass., Post Office, February 14, 1888.

TECHNOLOGY ARCHITECTURAL REVIEW.

DEPARTMENT OF ARCHITECTURE,

Massachusetts Institute of Technology.

VOL. II. BOSTON, JUNE 22, 1889. No. 2.

PUBLISHERS' DEPARTMENT.

HENRY D. BATES. THOMAS R. KIMBALL.
EDITORS.

BOSTON . . . . . MASS.

Eight numbers constitute a yearly volume.

Price, mailed flat to any address in the United States or Canada, $3.00 per volume in advance. To any foreign address, $3.50 per volume in advance.

Single copies, 50 cents.

Remittances by Postal Money Order, or Bank Draft on *Boston* or *New York*, should be made payable to TECHNOLOGY ARCHITECTURAL REVIEW.

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OUTLINE OF A SPANISH TOUR.

(*Continued from No.* 1.)

TWENTY-EIGHT miles to the south of Valladolid, still on the great northern line, lies Medina del Campo, — a place only worth stopping at for the superb castle of *la Mota*, whose great tower, gateway, and walls are as fine an example of the mediæval fortress as can be found in Spain; and also because from this station a triangular excursion can advantageously be made to Zamora and Salamanca, each about fifty miles from Medina and connected with it by rail. The two towns are forty-two miles apart, and a diligence runs between them over a good road.

Zamora is an ancient walled town, with a striking site, and is approached by a picturesque bridge over the Douro, with gate-towers at the two ends. The cathedral is small, but interesting, with many unusual features, and a richly carved range of canopied stalls in the choir. Some smaller churches are worth seeing.

Salamanca has two cathedrals, — one of the twelfth century, the other of the sixteenth; the former extremely interesting. Santo Domingo is an example of the richness of the Spanish Renaissance. The great University, once among the most important in the world, is now nearly deserted. The façade of the University library is noticeable.

Avila, though lying directly on the great Northern line to Madrid, is little known and seldom visited, which is a pity, since it is one of the most interesting towns in Spain, or indeed in Europe. Its tremendous walls, dating from the end of the eleventh century, completely surround the town, and are in perfect condition. They are of cyclopean masonry, forty feet high, and are pierced with ten great gateways, protected by enormous round towers twenty feet higher than the walls, and connected by lofty round arches in advance of the gateway.

The cathedral is a noble church; its great eastern apse projects beyond the town wall and forms the largest of the embattled towers with which the wall is strengthened.

San Vicente, just outside the walls, is extremely interesting, with a beautiful recessed west porch, and a sort of one-sided cloister along the south side.

San Tomas has some beautifully carved choir-stalls.

Many remains of Moorish and Gothic buildings are to be met in the streets, some in excellent preservation; and the costumes and street pictures are delightful.

Avila to the Escorial, forty miles; fare, $1.50.

It is much more convenient to stop at the Escorial on the way to Madrid than to make an excursion out to it from the capital. Time and money are both saved.

The Fonda del Miranda, just at the side of the great palace, is neat and comfortable.

The Escorial is one of the great monuments of the world. Its interest is less architectural than historical, yet even architecturally I found it most impressive; its very monotony helps the effect. It is the biggest palace in Europe, and occupies a site such as was never chosen elsewhere for such an edifice, — on the barren slope of the mountain, with the Sierras behind, and looking out over an enormous desolate prospect without a sign of life.

The church occupies the centre of the immense pile of buildings, and has a really majestic Renaissance interior, 300 feet long, dome 300 feet high; rich decoration of marbles, but not too fine. The library is a fine room some 200 feet long, with many interesting portraits. Four lovely rooms called the queen's apartments, with decorations of wood and metal inlay, extremely elegant and festive.

From the Escorial to Madrid, thirty miles; fare, $1.20.

Madrid has little or no architectural interest. It is a modern city with nothing characteristically Spanish; but one should stay long enough to give two or three days, at least, to the splendid Museum. Scarcely any collection of pictures in Europe is more interesting, and here alone can the great Velasquez be studied.

Laurent, 39 Calle de San Geronimo, has a most extensive collection of admirable photographs, including everything interesting in Spanish architecture and all the great pictures in the Museum. The price is three francs each.

There is an Archæological Museum at the lower end of the city which is worth a visit.

Toledo, although it lies apparently on the route from Madrid to the South, is best visited as an excursion from Madrid. The distance is about forty-five miles; the journey takes three hours. A return-ticket costs $3.20.

Toledo is the real centre of Spain, and was its capital under Romans, Visigoths, Moors, Christians. The Moors held it for four hundred years, but little remains of their work. Moorish buildings were easily destroyed; and the history of Spain during the long struggle between Moors and Christians is but a succession of battles and sieges, in which few important cities escaped more or less complete destruction. There are, however, three mosques of which the interiors afford interesting illustrations of the Moorish style. The oldest, called El Cristo de la Luz, dates from the eleventh century, and is the best preserved of the three. It is but a miniature, scarcely more than twenty feet square, but of most characteristic and graceful design. Four small columns disposed as a square in the centre of the plan, and carrying horseshoe arches, divide the interior into nine compartments, each rising into a dome, the

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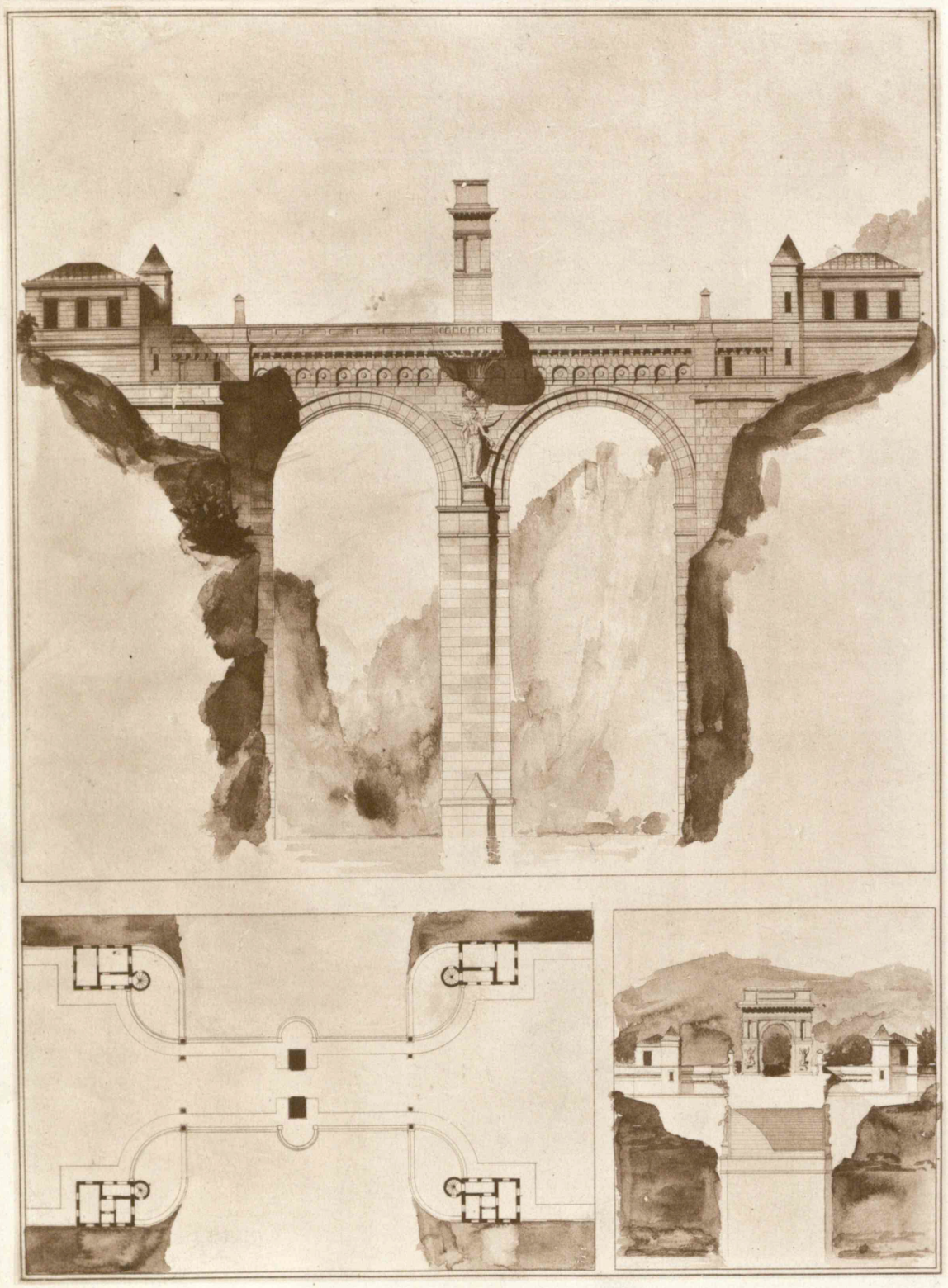

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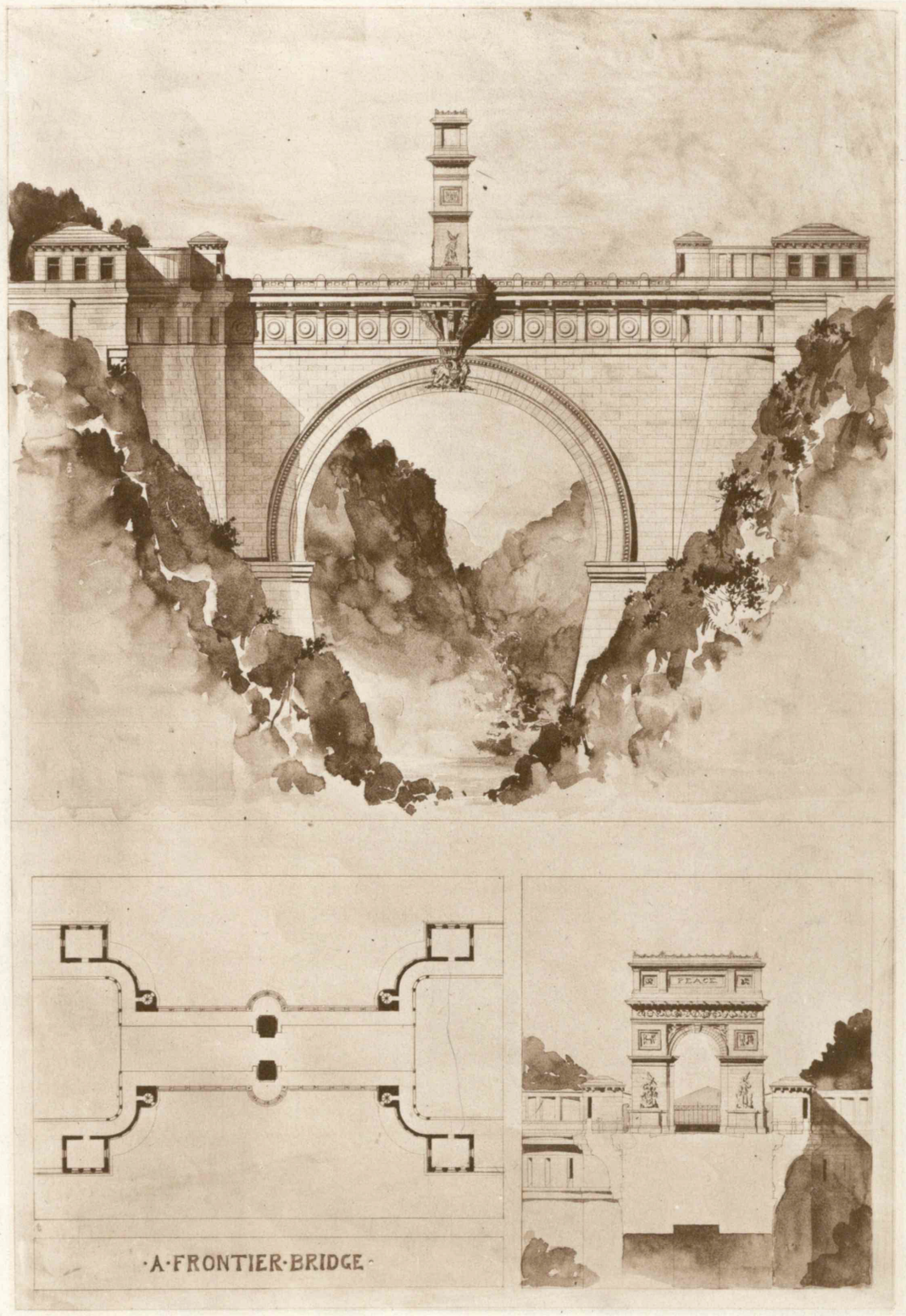
RICHARD HOOKER.



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WALTER H. KILHAM.

A MONUMENTAL BRIDGE.

FOURTH YEAR.

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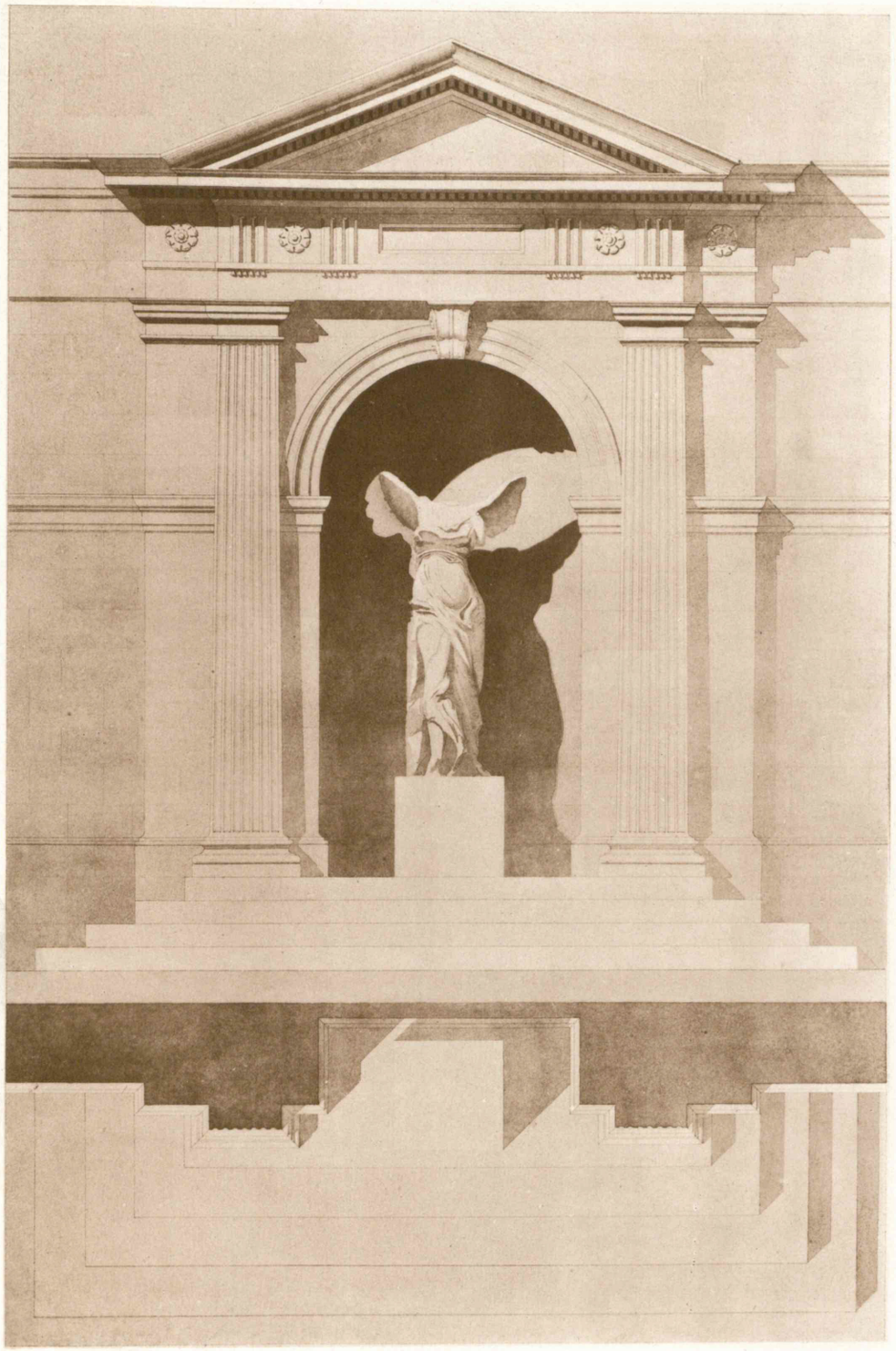

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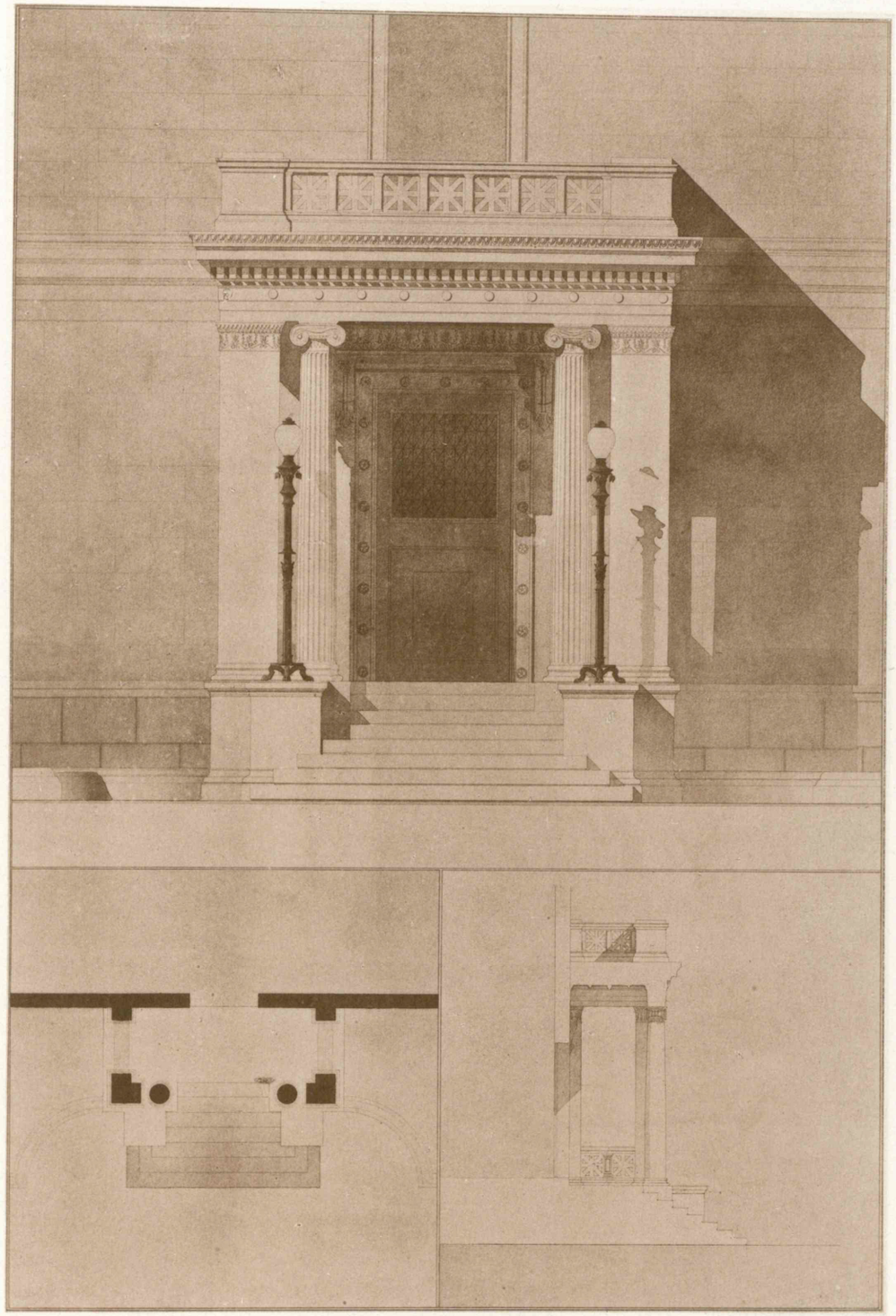
A NICHE.



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A PORCH FOR A CITY HOUSE.

MONTHLY COMPETITIONS.

SECOND YEAR CLASS.

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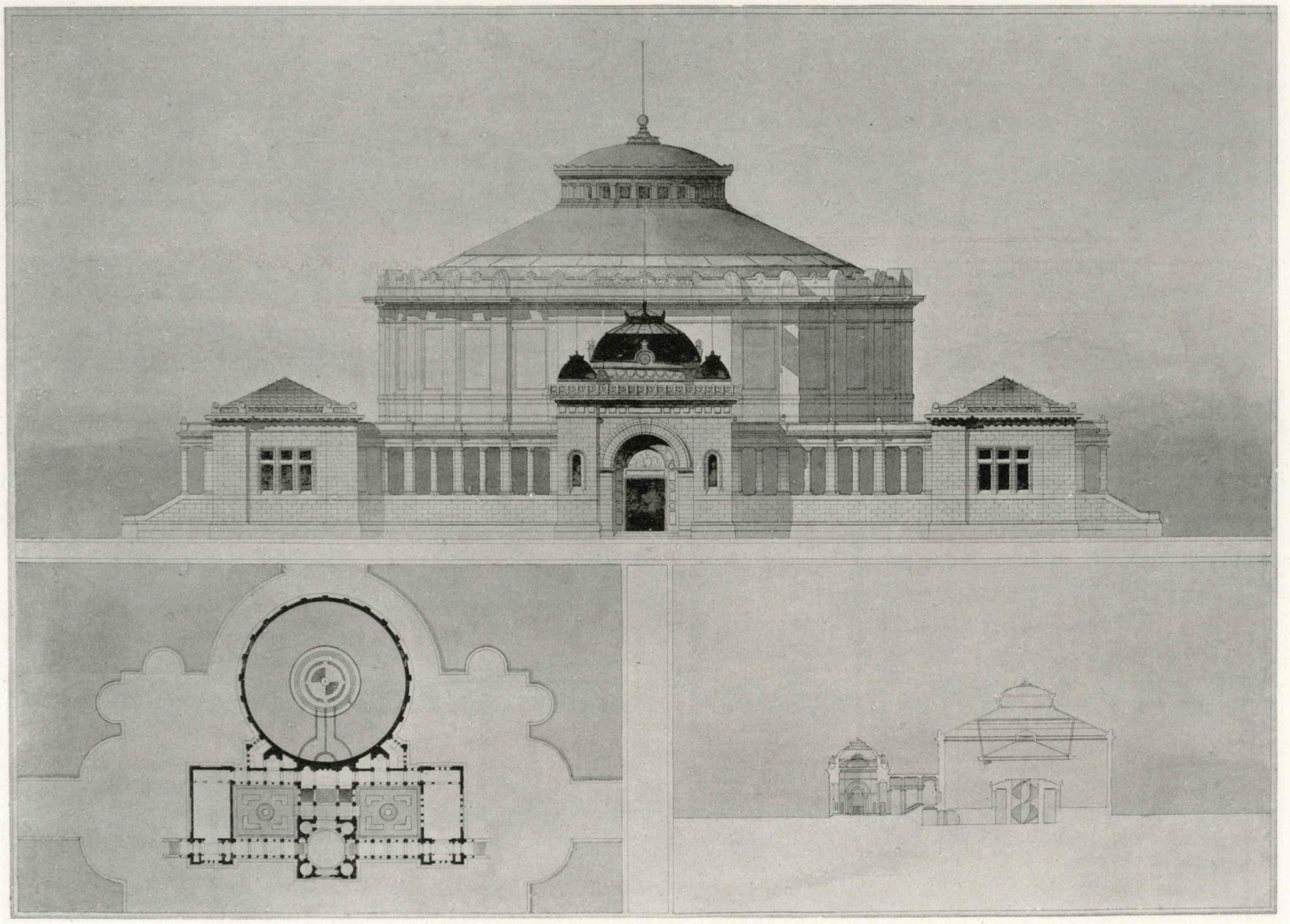

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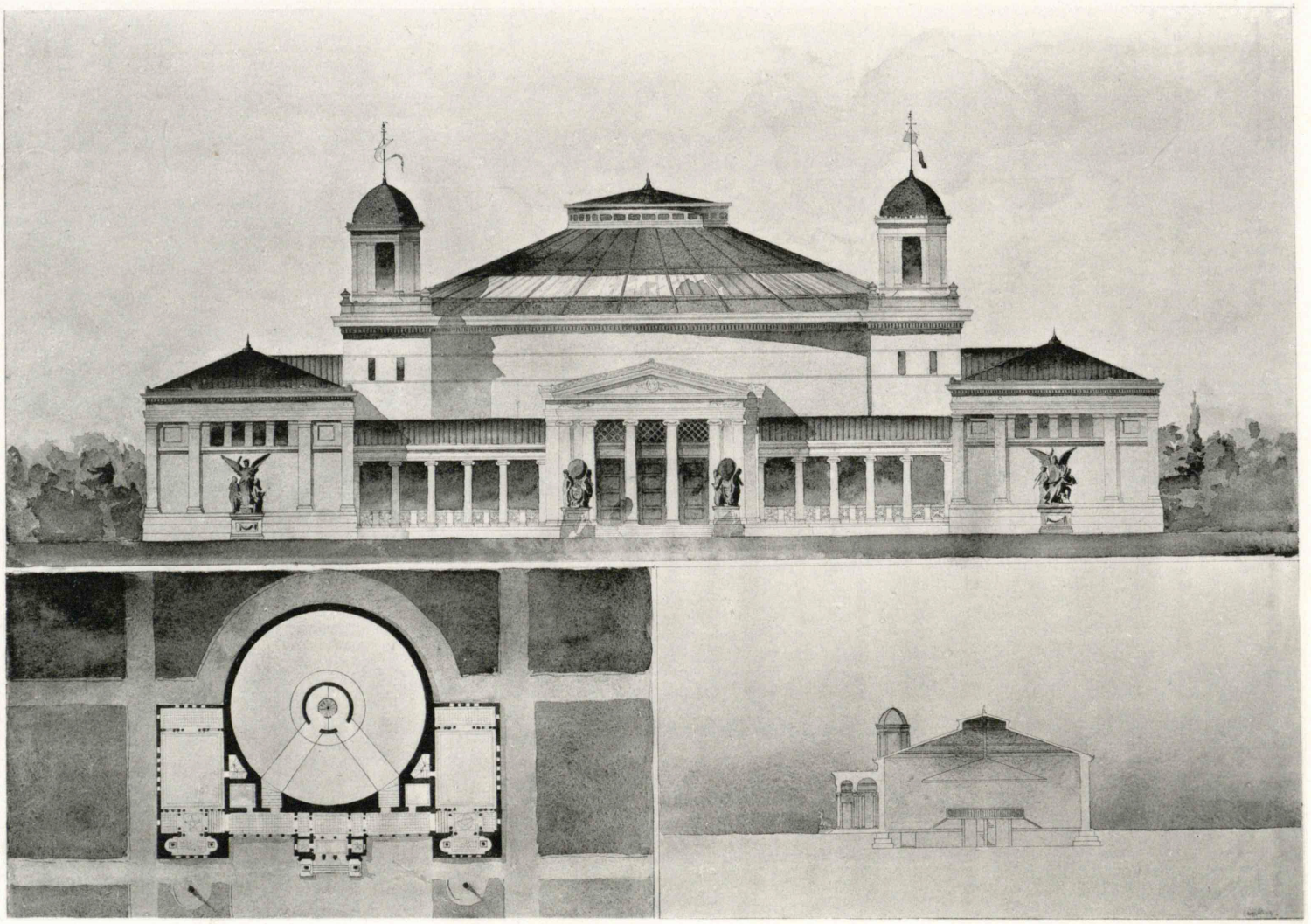

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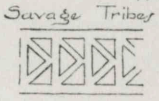
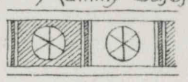
Repetition at regular intervals. Bands.

Nº1

Owen Jones Pl. II. Nº12 Savage Tribes



Owen Jones Pl. VIII Nº9 Egyptian Mummy Cases.



Owen Jones Greek. Pl. XVI. Nº15. From Vase

Owen Jones Pl. XXX. Byzantine Nº41 St Mark's, Venice

Owen Jones Pl. XXXVI. Nº22. Turkish Fountain, Tophana

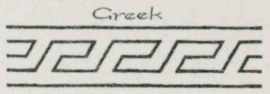
Owen Jones Pl. XLVI. Nº12 Persian MSS.

Owen Jones Page 37. Mexican

Friezes

Nº2

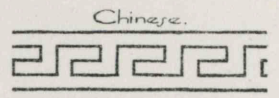
Greek



Arabian

Arabian

Chinese.



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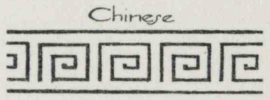

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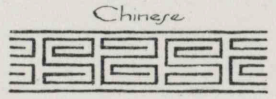
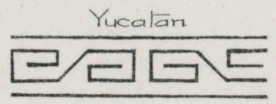
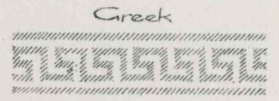


Yucatan



Greek



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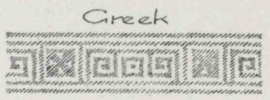
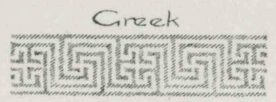
Greek



Greek

Greek



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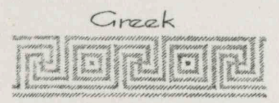


Scrolls.

Owen Jones Page 116.

Owen Jones Pl. X. Nº13

Egyptian

Owen Jones XXIX Nº14

Byzantine

Owen Jones Pl. XXVI Nº6.

Roman

Nº4

Friezes

Erechtheion Frieze Motive.

Owen Jones Pl. LXXXIX

Wave Motive

Greek & Chinese

Chinese

Famin, Architecture Toscane Renaissance Pl. 22.

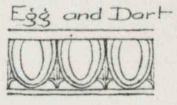
Ibid. Pl. 44 Renaissance

Ibid Pl. 62 Renaissance.

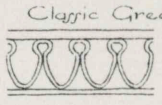
Ibid Pl. 50 Renaissance.

Nº5

Egg and Dart



Classic Greek and Roman



Bead and Fillet

Italian Mediæval Viterbo

Lombard Lucca

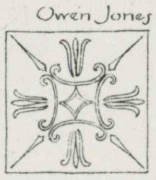
Roman

Sarcophagus, Vatican

Nº6

Ornament designed for defined spaces.

Owen Jones Pl. XXII. Nos 16. 17. and 14. Greek.



Ornament designed on axes

Owen Jones Pl. XXXVII. Nos 5-2. Turkish.

Growth based on lines of axes

Nº7

Owen Jones Pl. LXXI. Nº3.

Mediaeval Initial. Illuminated MSS.

Symmetrical Growth from central point

Kinross. Renaissance Ornament Pl. 48

Capitals Verona.

Nº8

Owen Jones. Pl. XXVIII. Nº17. Byzantine.

Murrhard Monastery.

Kinross. Pl. 37

Assisi San Francesco.

Venice.

Italian Renaissance.

Siena.

HELIOTYPE PRINTING CO. BOSTON

A STUDY OF DECORATION.

C. HOWARD WALKER.

middle compartment being carried up to a greater height. Note the ingenious way in which the small cusped arches are constructed of bricks.

Santa Maria la Blanca is thought to date from the twelfth century. It is a five-aisled church, divided by octagonal columns of brick, covered with plaster, with elaborate plaster capitals carrying round, plain horseshoe arches; the spandrels decorated with plaster in low relief, and with a cusped arcade above, evidently of later date.

The richest example of Moorish decoration to be seen in Toledo is, however, the ancient synagogue, now converted into the church El Transito, dating from the middle of the fourteenth century. As with all these buildings, the exterior is quite without interest, but the interior is extremely characteristic. It consists of a simple hall, about 30 by 80 feet, without aisles; walls quite plain for perhaps twenty feet in height and then decorated by a broad frieze of exquisite design in plaster, with a border above and below containing inscriptions in Hebrew characters. Above this frieze is an arcade of cusped arches carried on coupled columns, and enclosing some beautiful lattice work. The roof is of timber, ornamented with extreme richness and intricacy.

There are only two conspicuous examples of Moorish houses in the city,—the Casa de Mesa and the Taller del Moro. They are both worth hunting up. The former is not shown after half-past two. The cathedral is, however, the great monument of Toledo, and nothing finer is to be found in Spain. Externally it has nothing of great interest to show,—indeed, it is hardly to be seen but in fragments, being choked up by close-built houses on all sides. The interior is one of the noblest in Europe. I know nothing in architecture finer than the sweep of the two great aisles around the choir, with the range of chapels outside and the magnificent glass above. The cloisters are admirable, and have the unusual charm of a garden filling the square.

The church of San Juan de los Reyes, on the edge of the city, above the bridge of St. Martin, is the only other conspicuous Gothic monument of Toledo, with an ugly whitewashed nave, but beautiful octagonal choir and lantern, and lovely cloisters,—now, alas! in the hands of the restorers, and looking as if built last week. Exquisite delicacy and richness of detail.

All through the city the student will find innumerable points of interest and picturesqueness, among which I may name the ruined convent of Santa Isabel, with a beautiful gateway and some graceful arches in brickwork; also several simple but effective church towers, Moorish or semi-Moorish, of brick, laid in the characteristic Moorish fashion, with mortar joints from an inch to an inch and a half thick, the bricks themselves being thin and long.

The much-photographed and much water-colored Puerta del Sol stands half-way up the steep, zigzag road by which one climbs from the river to the city. It is a most picturesque object, but has little or no suggestion of antiquity in its aspect, having been most thoroughly restored.

Segovia lies about as far to the north of Madrid as Toledo to the south, and, like Toledo, is best visited by making an excursion from the capital. Train to Villalba on the Northern railway, and thence, by diligence, via La Granja, in five hours, to Segovia. One should, by all means, make a stop at La Granja to see the mountain palace of the Spanish kings, planted, according to Murray, at an altitude of 3,840 feet above the sea, on the Sierra Guadarama.

Segovia is six miles beyond La Granja,—an ancient and picturesque city, with a noble Roman aqueduct which still supplies the city with water, fine walls with round towers, an interesting, though very late, Gothic cathedral (Street presumes it to be "the latest Gothic building erected"), half-a-dozen fine Romanesque churches, with singular and characteristic features (as San Millan with its north and south exterior cloisters, El Parral with its choir gallery over the two western bays of the nave, and the ten-sided church of the Templars with its low tower), and the extremely striking and picturesque remains of the Alcazar. An interesting peculiarity to be observed here is the decoration of exterior walls with a diaper of plaster, very effective and elegant.

From Madrid to Cordova is a distance of 273 miles; that means a journey of thirteen to fifteen hours through a desert without an object of interest on the way. Fortunately, the trains leave Madrid in the evening. The fare is $10. An express train runs three nights in the week.

There is nothing to see at Cordova but the great Mosque, which I thought disappointing. Its splendor seemed to me to have been much overstated. It is, of course, impossible to set up eleven hundred columns in symmetrical rows, and cover them with any kind of roof, without producing an interior which shall have a certain effect. But this interior has no elevation (its whole height is about forty feet), and but little design. All sorts of columns have been brought from France, Constantinople, Africa, and Spain; those that were found too long being sunk in the ground, all sorts of capitals fitted to the shafts, often badly fitted, and a series of ugly horseshoe arches turned over them, and covered with a flat ceiling, now replaced by a poor vaulting covered with plaster. The effect of this remarkable interior comes, of course, from its immense extent. It covers a square of 394 by 360 feet, and is divided into nineteen longitudinal and thirty-three transverse aisles. There is little decoration in the Mosque, except in the small Moorish chapels on the south side, and especially in the Mihrab, or Sanctuary, where the walls and ceilings are ornamented with exquisite and delicate reliefs in gold and colors. Not the least interesting feature of this great building is the Patio, or Court of Oranges, in front, with its interior arcades and its old Moorish tower and gateway,—a beautiful composition.

From Cordova to Seville, eighty miles; fare about $3. Between Toledo and Seville there is the contrast between winter and summer. Toledo is stern, deserted, silent, gloomy; Seville is jolly, swarming, noisy, full of life and movement.

The cathedral, 272 by 414 feet, begun 1403, is the largest Gothic church in Europe; and Mr. Street, with characteristic narrowness, declares that to be its only considerable claim to respect. Externally, it must be confessed, this great church has little to interest the architect; but the interior, after making every allowance for the wide departure from the pure forms of the Northern Gothic, appears to me simply overwhelming. The mosque which formerly occupied its site has disappeared, but has left its monument in the splendid bell-tower, the Giralda, and in the entrance court on the north, planted with orange-trees, and entered by a beautiful Moorish gateway in the outer wall.

The Alcazar is just across the square from the cathedral,—a store-house of the most beautiful and characteristic Arabian architecture. Not even the Alhambra can furnish any more delicate or exquisite examples of Moorish art. The gardens are delightful.

The Casa de Pilato, at the east side of the town, has a fine Moorish patio and staircase, and some of the rooms are shown, though the house is now the residence of a Spanish duke.

The Lonja, or Exchange, standing in the middle of the square, to the south of the cathedral, is a fine example of the Spanish Renaissance of the sixteenth century, with a noble court-yard and staircase. The Casa del Ayuntamiento, or town hall, is an amazing specimen of Plateresque architecture.

With the exception of the cathedral, there is scarcely a church in Seville of any interest; and when the student has seen the buildings I have named above, he may devote the time which remains to him in this charming city to observing the life of the people, and to enjoying the atmosphere of careless gayety which pervades the place. He may visit the palace of San Telmo, with its magnificent gardens; and he should, on no account, omit a

visit to the tobacco factory, where he will see a phase of manufacturing industry which will astonish him. If he happen to be in Seville at the right season, in April or September, or at Christmas time, he may go to a bull-fight; the Seville ring is one of the most distinguished in Spain.

A traveller in the South of Spain will wish to see Cadiz, although it has absolutely no architectural interest. It is reached from Seville by rail in about five hours, the distance being ninety-five miles, and the fare $3.65; or one may go down the Guadalquivir by steamer two or three times a week in eight or nine hours. Cadiz is a clean, white city with few points of interest, the greatest being the fine promenade around the ramparts toward the harbor and the open sea. Steamers run hence at irregular intervals to Gibraltar, in about eight hours. One has also the choice of a diligence route along the coast as far as Algeciras, opposite Gibraltar; fare, four to five dollars. In fine weather this route is to be preferred, as the road is good and passes through some very striking scenery.

Gibraltar has absolutely nothing to show in the way of architecture; but it is, notwithstanding, one of the most interesting and impressive spots in the world, and no intelligent traveller will regret the time he gives to it.

An excursion to Tangier should on no account be omitted. Steamers leave Gibraltar every day, and the passage takes about three hours and a half. At Tangier one may forget Europe and the nineteenth century. With the exception of the excellent hotel, there is nothing to remind him of either. No more thoroughly Oriental town is to be found in Egypt or Syria; and the pictures of Moorish life one meets constantly in the streets and shops and cafés, and in the prison, and in the bashaw's palace, and wherever one gets a peep into an interior, are quite enchanting.

From Gibraltar, steamers run along the coast to Malaga every day or two, except in the winter, when there is no regular service, and one must depend on the chance accommodations of one of the merchant steamers which are constantly passing to and fro. The passage takes about eight hours.

Malaga is quite without architectural interest, but it is the point from which Granada is to be reached, by a railway journey of about one hundred and twenty miles; fare, $5.30. The first half of the road, as far as Bobadilla, passes through extremely fine scenery, with luxuriant semi-tropical vegetation. The latter portion traverses the great sloping plain which lies at the foot of the Sierra Nevada, on the edge of which sits Granada. The town itself has few remains of the Moorish days; but the hill of the Alhambra, which rises sharply from the edge of the city, is the point at which the exquisite and delicate genius of Arabian art reached its culmination, and at which its beauties and its deficiencies can best be studied. Let the student sit down here for as long a time as he can command, — however long the time, he will think it too short, — at one or other of the two comfortable hotels under the Alhambra walls, and give himself up to the fascinations of the spot.

The traveller who has followed thus far the route which I have traced will have seen most of the points of greatest interest in Spain. If he wishes to see the cities of the eastern coast, — Carthagena, Valencia, Tarragona, Barcelona, — cities whose interest is mainly of a commercial nature, though the two last-named have fine cathedrals, — he will return to Malaga and take a steamer to Carthagena, whence the others may be reached by land or water. If he wishes to go to Italy, he will find frequent steamers for Genoa, Naples, or Palermo; or he may cross by a weekly steamer from Malaga or Carthagena to Oran, on the African shore, whence the railway is now complete to Algiers, Constantine, and Tunis, — a route full of novelty and interest. From Tunis, the ports of Sicily and Italy are within easy reach.

CHARLES A. CUMMINGS.

DEPARTMENT OF ARCHITECTURE.

MONTHLY COMPETITION.

FOURTH YEAR REGULARS AND THIRD YEAR SPECIALS.

PLATE I.

Programme: A MONUMENTAL BRIDGE.

IT is supposed that two neighboring nations, having settled by arbitration a question of boundary, agree to erect over a stream, which forms the frontier determined upon, a bridge which shall serve to promote friendly intercourse and at the same time preserve the memory of their conduct as an example to future generations.

The stream at the point selected lies one hundred feet below the level of the proposed road which, passing along the slope of the mountain, which forms one bank, until it reaches the narrowest part of the ravine, here crosses to the opposite side. The engineers report that good foundation for masonry may be had, if desired, in the bed of the stream.

It is necessary to erect at each extremity of the bridge one or two small buildings to serve as custom-houses, with lodgings for the officer in charge, and a guard-room for the inspection and weighing of baggage and merchandise. There should be also a small lock-up for the detention of smugglers and other prisoners, also a gate across the road.

From one custom-house to the other, the length of the bridge will be at least one hundred feet, and its width within the parapets thirty feet, comprising a carriage-way and two narrow footways. In the centre of the bridge, over the middle of the exact boundary, is to be a Triumphal Arch, or Arch of Peace, of such character and dimensions as may best suit the rest of the composition. The carriage-way may here be reduced to about ten feet, if desired. The custom-houses, bridge, and arch are to be built of light-colored stone or of marble, and are all to form part of a single architectural composition.

Required: preliminary sketch, — comprising general plan, elevation, and section showing the Arch of Peace, on a scale of one-sixteenth of an inch to the foot. Finished drawings, — comprising principal elevation and section showing Arch of Peace, on a scale of three-sixteenths of an inch to the foot. One plan on a scale of three thirty-seconds of an inch to the foot.

E. LÉTANG.

JUDGMENT.

First Mention . . . . . RICHARD HOOKER.
Second Mention . . . . . WALTER H. KILHAM.

Four designs in Competition.

NOTES OF CRITICISM.

To judge at all fairly of the designs under consideration, one must first take into strict account the terms of the programme, the limitations of the students' acquirements, and the marked differences between this problem of the school and those to be confronted by the same young men when they are called to face the practical difficulties of combined construction, design, and expenditure. A word or two may properly be said on this last point before proceeding further.

The practising architect competent to build an important monumental bridge, — the leading requirements — practical, financial, sentimental, and diplomatic being furnished him, — would, doubtless, at once proceed to inspect the site. But his would be no superficial inspection; and before he committed himself by showing to his employers a design, the leading features of which he might be expected to justify in masonry, he would add to his acquired experience a multitude of new facts bearing upon the special construction projected. He would have careful measurements taken, and accurate profiles drawn of the banks of the stream and the roadway approaches. The rock would be uncovered, and drilled or cut to learn its character for strength and durability. The stream and its habits and the nature of its bed would be fully investigated. The various qualities of the available building-stones

would be investigated. Builders would be interviewed Study would be made of similar constructions already existing, — of the works themselves, if within reach, or of their printed records. The habits, customs, laws, and methods of transportation of the people for whose use, instruction, and enjoyment the bridge and its adjuncts are intended, would receive attention. All this, and much more, would precede any attempt at serious design. And before any definite scheme would be offered for consideration, the architect, by numerous tentative diagrams, sketches, and calculations, would prepare himself for the great work that might prove a lasting monument to his fame, or a record of his incapacity and negligence.

With the architectural student all this is different. No question of cost hampers him. The banks of his stream are sketched in to suit his visionary structure, and are made bold and picturesque, or clothed in verdure, in which the abutments of his bridge softly fade away. Winding valley and distant hill and sky serve to strengthen weakness or accent monotony, as in the most approved "competition" draughtsmanship. Even with the determination to work in the right way, his equipment is slight, and his actual experience next to nothing. His design cannot be very serious, except as a bit of pictorial invention and rendering. And he naturally inclines to lose sight of the fact that pictures are nothing to architecture as an art or science, though perhaps only too much to it as a trade.

The information on which real building-design is based is not often acquired by the ordinary pupil in a technical school. Something of surface effects and of projected shadows he can learn, and of arrangements of plan, and proportion of parts, and methods of representation by drawing; but a real grip of solid bulk is hard to get; and the beginner naturally relies upon such representations of work and design as the school library affords, and from the same source he must gather his details. No great originality can be expected; and it is much if he selects with judgment from the best, and gives a simple and well proportioned combination of masses, based on a clear and practicable plan. Buildings and features that have been approved for ages are his safest materials. If he makes good use of these, and draws them with spirit, neatness, and accuracy, his work is more likely to meet the approval of the practising architect than if he struggles inefficiently for novel effects. Above all, a straightforward and clear treatment should always be preferred over the shuffling, sketchy, and uncertain. Whatever is good in art is based on knowledge.

In the bridge design placed first, the plan is correct, simple, and clear, and, in general, well adapted to the given requirements. The approaches are good, — better than in number two, where the broad roadway abuts too abruptly against the footway at the sides, making awkward corners for vehicles. The two arches, with massive central pier directly supporting the Arch of Peace as well as the roadway, is a fitting treatment, both constructional and symbolical. — indicating in the latter sense that the boundary is in the stream and not in the air. This interpretation is specially permitted by the terms of the programme.

Except that the Peace Arch and its flanking balconies are somewhat lacking in bulk, this design is well balanced and massed, and could, doubtless, be made to appear well as seen in perspective from the roadways of approach. The detail is, in the main, simple, fitting, and, so far as can be determined at the scale employed, fairly well studied, — except that the detail of the footway balconies is too fine and weak, and the sculptured figures and trophies trivial and very imperfectly drawn. This criticism applies with equal or greater force to the sculpture of the second design. It occurs to the critic that in both cases fine sculpture on the outside faces, and somewhat over-hung by the parapet of such a bridge, would not edify the patrons of it to any great extent. On the Peace Arch richness would be most fitting.

In both designs, the arches that span the ravine touch with the bold mouldings of their crowns the level string-courses of the cornices. When the projecting extrados of a large and sharply defined arch touches the level under line of equally bold mouldings, the level line appears to sag. Several instances of this defect may be seen in our local work, and sometimes it is found in old examples; but it is a defect nevertheless. A good arch should have some thickness of covering between it and the roadway; and this should be indicated in the external treatment A slight crowning of road-bed and parapet is preferable to a dead level, both as a matter of appearance as well as construction. The graceful crown of Mr. Richardson's single span bridge on the Back Bay Fens (Boston) is a good example of this

The design placed second is in general treatment as good as No. 1, except in having the single span in place of the central pier, and also in the unfortunate form of its main arch. A monumental arch should, of all things, appear, as well as be, stable. A "horse shoe arch" is seldom advisable except as an almost purely decorative feature, and when of very limited dimensions. As a whole, it is not an arch, but a construction comprising an arch. In a case like this it has every appearance not of weakness only. but of absolute failure in a progressive stage, caused by the settlement of the abutments.

With the exceptions already noted, both the examples are fairly well drawn and rendered. Both indulge in the absurdity of setting a formal geometrical elevation in a very free and sketchy landscape in perspective; but this incongruity is not confined to beginners.

The defects of these drawings and designs, and of the class to which they belong, are indicative not so much of the shortcomings of the schools, as of the profession. Imitations of modern examples taken at second-hand instead of thorough study of old examples, a lack of reality in work and of thorough constructive knowledge and proper use of materials, and showy and sketchy pictorial treatment, made to obscure or conceal defects of real attainment, — these are the crying evils of the profession in America.

When the technical school and the trade school unite for mutual criticism, the exhibition results may decline in interest for the public, but the young architect will make more intelligent drawings and better, though simpler, designs. In the closer union of the arts and the crafts lies the hope of architecture in the future.

JOHN A. FOX, *Critic.*

SECOND YEAR PROBLEMS IN DESIGN.

PLATE II. reproduces designs for a niche and a porch. Though not usual to publish work so early in the course, these two *projets* being deemed exceptionally meritorious solutions of the first two regular problems, are given place, however, without criticism.

THIRD YEAR REGULARS AND SECOND YEAR SPECIALS.

PLATE III.

Programme: A PANORAMA BUILDING.

THIS edifice, intended for the exhibition of circular paintings, is supposed to be erected on a special site of a public promenade. Its main features will be a rotunda and two wings, one of which will be devoted to a diorama, where would be exhibited previous studies of historical interest, and the other will be used for a ladies' café, accompanied by the usual conveniences.

The main entrance is to be accompanied by two small offices, and is to connect with the wings by means of a portico.

The inside wall of the rotunda will be circular in plan, its diameter being about one hundred and thirty feet, and its height from fifty to sixty feet. A platform no less than fifty feet in diameter, and about twenty feet high, will be established in the centre, for the spectators, and it will be reached by passages leading to a central staircase.

The external part of the rotunda is to be without windows, and accordingly will be treated as a decorative wall. The light is to come from the roof, in which will be arranged a glazed zone taken at about eight feet from the gutter. The trusses supporting the roof will have no central support, but will be combined so that a canopy may be erected over the platform.

Required: Preliminary sketches of plan and principal elevation on a scale of one-sixteenth of an inch to the foot. Finished drawings of principal elevation on a scale of three thirty-seconds of an inch to the foot, and plan and section on a scale of one thirty-second of an inch to the foot.

EUGENE LÉTANG.

JUDGMENT.

First Mention	L. C. NEWHALL.
First Second Mention	A. W. RICE.
Second Second Mention	R. T. WALKER.
Third Second Mention	SOPHIA G. HAYDEN.

Twenty-two designs in Competition.

NOTES FROM CRITICISM.

THERE are several general points to consider in judging the merits of the designs for a Panorama Building.

In any plan where there is an entrance for a number of persons, it is well to have that entrance lead as direct as possible to the point to be reached, and that there should be as little deviation to either side as the conditions will require.

Wherever there is a large dominant mass, with smaller auxiliary masses about it, in a grouped building, the relative scale of the different masses needs careful study, not only in silhouette but in detail, — the larger mass requiring sub-division to bring it in scale with the smaller.

The masses should not be too much separated from each other, but should be studied as part of a whole, and from all points of view.

The design placed first has an excellent plan; the entrance hall is spacious, and as such a hall should be in a public building, and the cloistered treatment around courts is effective. The exterior is well proportioned, and the openings are relatively in scale. The circular building is well divided, and, though possibly a little large for the other masses, is well sub-divided.

The dome is a little flat.

The chief fault is the roof over the entrance, which is not in keeping with any of the other roofs, is too much divided and out of scale. A plain hipped roof would have been better.

The projection of the corner piers, as shown by the shadows, is a little too much; and the corner entrances in perspective would probably seem too light for the rest of the mass, and somewhat like after-thoughts.

The circular building would seem very much detached from the side. Perhaps this could be obviated by carrying the side pavilions farther back.

SECOND MENTION. The entrance gives upon a blank wall, and in plan is meagre, and would be improved by greater projection.

The exterior is good, and the addition of flanking towers helps the general composition from all points of view. It is doubtful whether a pilaster treatment is a good thing as a continuation of a colonnade, especially as it is difficult to avoid comparing the intercolumniation of the columns with that of the pilasters, in which case the latter are much too far apart. The sides, too, are not well adapted to the pilaster treatment.

The change of entablature over the entrance is unnecessary.

C. HOWARD WALKER, *Critic.*

THE STUDY OF DECORATION.

(*Continued from No.* 1.)

IT will be seen by the preceding analysis of the bases of all-over patterns, that order in them is obtained largely by repetition, and that ratio and concentration are auxiliary factors unnecessary, except for enrichment. This is also true of the next class of ornament to be considered, that of the Bands.

BANDS AND BORDERS.

Bands of ornament, bounded upon two parallel sides, and capable of indefinite extension in the other two directions, are the earliest of all historic forms of ornament, and are still the favorite forms of decoration among peasants and half-civilized peoples. As in all continuous design, repetition, though not necessary (take, for instance, the Gothic string-courses, which frequently have no repeat), is of value as giving uniformity of tone and of strength, and most of the Band or Border ornaments consist of one or two units repeated indefinitely. These units either repeat regularly, of equal size, or in size or spacing follow a sequence; sometimes rising and falling like a crescendo and diminuendo, sometimes with a succession of crescendos only, — or else in pairs or groups, in which case the group becomes merely a compound unit. (Pl. IV'., No. 1.)

They are an invaluable class of ornament for marking the divisions of organic forms, and could be less spared than any other class of decorative work. To this class belong the Frets (Pl. IV'., No. 2), Scrolls (No. 3), Frieze ornaments (No. 4), and decorated mouldings (No. 5).

There is one rule to be observed, that is, to keep the axes of the units either parallel with or at right angles to (preferably the latter) the band which they decorate. A diagonal treatment is to be avoided for the same reason given for the all-over patterns.

POLYGONAL FORMS.

When we come to consider the remaining large class of decorative designs, that is, those that are made especially for the space they fill, and which are bounded definitely on all sides, we shall find that ratio and concentration are the prominent factors, and that repetition is auxiliary, and usually avoided.

As in the case of all-over patterns, there are but few bases of design. These can be stated as applying to ornament that is fragmentary or disconnected, and to ornament that is continuous.

CONTINUOUS ORNAMENT IN POLYGONS.

The chief scheme of design is of planning the ornament upon or near axes of the polygon (No. 6); the secondary scheme being that of continuous growth from some selected point — this point being determined by apparent stability and repose (No. 7).

DISCONNECTED ORNAMENT.

The usual scheme is that of one or more borders conforming to the outline of the space decorated, and one or more isolated units placed symmetrically in the central ground (No. 8).

As a large class of decorative work is applied to architectural forms, it is as well to consider these forms especially, taking for granted that whatever will apply to those will apply elsewhere.

Purely constructive forms in architecture, that is, forms that are produced by the laws of mechanics, when decorated (if at all) should have the lines of their organic action accented. This is the *raison d' être* for all mouldings.

But the spaces left between and within these lines of action, — the spaces that are not performing a function, but merely filling a gap, — can stand any amount of the richest decoration without impairing the apparent stability of the frame about them

These spaces are the tympana of arches, spandrils, pediments, circular, oval, and peculiarly shaped panels, etc., and it is to these that the methods of design mentioned should be applied (No. 9).*

To dispose of the circular form or the tympanum is a simple enough matter. The axes of a circle are its radii. Ornament starting from the centre and following these radii, as in crystalline forms, or ornament starting from the circumference and following the radii toward the centre is an obvious solution (No. 10).* A Border of one or more concentric circles, — the axes of the border units being on the radii of the circle, — is manifestly possible (No. 11).* Growth from the base, with radiation from the point of growth to right and left of a perpendicular axis, is not quite so evident, but again possible (No. 12);* and the assumption that a circle is a compressed ellipse, and the use of two centres of ornament at the presumed foci (the ornament again being symmetrical on either side of a central perpendicular axis), is an unusual treatment, but capable of good result (No. 13).* With oval forms and pointed arch tympana, the method is similar.

With forms which have corners it is a good plan to bisect the angles and work on the axes thus obtained. When one or more of the sides is a curve, the axis should be curved, as it is the mean between the two lines forming the angle. There are excellent examples of this method in most oriental work (No. 14).*

The use of borders about polygons, with units distributed on the remaining ground, is the simplest manner of evading the perplexities of design filling an awkward form.

RATIO.

Ratio, or relative proportion produced by radiation, is subject to a number of influencing characteristics.

The rapidity of divergence has a marked influence on density and uniformity (No. 15).*

In most cases it is well to consider the radiating axes as so many repeating axes, perpendicular to the arc of a circle instead of parallel to each other; and they are subject to the same regulating influences of repetition, sequences, etc.

Radiation is much more agreeable and less explosive when the axes of the units are curved instead of straight lines. To this class of ornament belong most of the richest of the compound units of all periods of decorative art, — the Lotus, Palmet or Honeysuckle, Acanthus, Vine, Rose, etc. (No. 16).* It is the conventionalized expression of the method of natural growth.

Radiation from curves should be either tangential or opposed (No. 17).*

Radiating branches of ornament need to have continuity of direction; and back growths should start in the line of progression and turn backward after parting from the parent stem (No. 18).*

CONCENTRATION

Means the crowding of axes or of units toward each other at intervals, or the increased accent placed at certain points, either by multiplication of parts, or increase of size, or contrast of tone or color; the object being to focus attention and break monotony (No. 19).*

STEMS AND TERMINALS.

In all design, especially that based on radiation, either lines or spots should be made prominent, either axes or centres of interest should be accented, either stems or terminal flowers or leaves should be made dominant. When both are equally apparent, monotony is the result (No. 20).*

The oriental method is usually to distribute proportional centres, and connect them with secondary stems (No. 21).*

The occidental method is more apt to be to carefully arrange and develop axes or growth lines, and spice the design with occasional centres (No. 22).*

When the axes are neglected there is danger of spottiness.

When the centres are subordinated there is danger of wiriness and thinness.

A balance between the two methods is, therefore, desirable. As in everything else, it is a matter of equilibrium — sufficiently uncertain to prevent monotony.

SCALE.

Scale of ornament is relative in its component parts to each other, and in the ornament as a whole to its surroundings.

CHAPTER II. — PRIMITIVE DESIGN.

GENERAL TENDENCY OF DESIGN, AS INFLUENCED BY MENTAL QUALITIES.

Races which have attained to like conditions are found not only to use similar methods of artistic expression, but also use the same decorative motives.

In all pre-historic work, the desire to decorate or beautify finds its expression first upon the things that are most in use, — upon common utensils and implements; and the same fact is true of races of savages to-day who occupy a corresponding degree of development. This is natural enough, as their luxuries are few at most; but more than this, there seems to be an inability of rendering, so to speak, a limit to imagination, common to all barbarous nations, which allows them only a small range of expression. The one universal characteristic of the earliest work, the work done by man either in the childhood of the world or the childhood of his nation, is the tendency to avoid curves and to make everything with angles, — preferably open angles, not acute ones. So prevalent is this, that the exclusive use of squares and of frets is indicative either of a pre-historic period, or of a tribe or individual in the beginning of their development. For instance, take as examples the work found upon the vases at Santorin, the work in Phrygia, the so-called tomb of Midas, the work in Yucatan, and in Mexico, and the work of the modern South Sea Islanders. Limited means as far as material was concerned, the necessity of producing designs in bricks, in coarsely woven withes, etc., tended of course to break up all curves, even if they were desired; but apart from this, it is evident that what a civilized man sees as a curve, the uncivilized man saw as a succession of straight lines changing direction, and made his drawing accordingly.

A fret was their most realistic method of drawing a continuous scroll or any involution of line, and any circular or elliptical form was represented by being reduced to a rectangular form of the same general size.

A very distinct advance is indicated by the use of a circle, — this advance representing quite a term of years and a great gain in perception. For a long time, as with the Zuñis of to-day, elements are represented as follows: Water by a series of zigzags, rain by parallel lines, clouds by squares and rectangles, and other ordinary objects with corresponding conventionality. Even when curved lines begin to be used, they are simple not compound curves, and first make their appearance as symbols. The sun is represented by a circle, but it is almost within historic range when the sun's rays are added by radial lines. The line of perceptive progression, or rather the line of ability to delineate things seen, seems to be as follows: (1) All forms squared; (2) Continuous curves, represented by straight lines following the general tendency of the curve; (3) Representation of circular forms by circles and simple curves; (4) Ability to draw compound curves.

With the exception of the wave patterns, all these motives are isolated units, and there is absolutely no use of the radial scheme which becomes so important in later and more sophisticated work.

It is easy to see how a large number of these designs originated apart from an attempt to represent natural objects. Probably the earliest work is cut work, with the notched stick as its ancestor; and from this can be traced the elaborated patterns of triangles upon Feegee canoe-blades, etc.

Another large class of work was developed by the use of woven withes, or woven straw, of different colors, from which most of the so-called checker-work is derived.

The third and largest class is the type of ornament which comes from the use of the potter's wheel, the class of parallel belts or bands. The clay in revolving naturally takes lines in the planes of its revolutions, and these lines, if grouped intentionally, form zones of light and shade. These zones are decorated very early: first with isolated spots, then with diagonal lines, which, meeting others reversed, formed triangles and diamonds, etc.; then the spots become the centre of circles, and these in turn the centre of other concentric circles, until we only need the introduction of the radial principal to have all the factors of geometric design; but this radial principal is exactly the lacking quantity in all very early work, — a perception of this principal being only attainable in the natural development of design by a mind considerably in advance of that of pre-historic man.

The use of the bands, which are so frequent upon pottery because so easily drawn by the revolution of the wheel, is not confined to pottery alone, but appears in decorating the outlines of all sorts of forms. And the concentric band system is very prevalent, in fact, few if any fields of ornament are found in early work, the chief idea being apparently to accent outlines and let surfaces take care of themselves. The result is excellent, as forms are thus frankly defined and never distorted. Of the many motives produced by the combined attempt to symbolize or represent natural objects, and to accent form, there are some few (in every case extremely simple) which have survived as distinctive unit-motives of decoration. These are the wave-symbol in all its forms, afterwards used by the Greeks, the Chinese, and the Goths; the frets; the so-called parapet pattern which the Zuñis use to represent the pueblos of the gods, and which, among the Assyrians, might well have symbolized those many-colored staged towers, of which Babel was the greatest.

Several of the later symbols, such as the Swastica of the Jains and Chakra of the Buddhists, are modern survivals of the simplest of the old symbol-units.

C. Howard Walker.

[*To be continued.*]

* These numbers refer to Plate IV"., No. 3.